Gleanings in Bee Culture

Established 1873

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MAY, 1937

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To provide for and make convenient conditions is the part of mankind.

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WE ARE DISTRIBUTORS OF

Root QUALITY BEE SUPPLIES

INCLUDING THEIR FAMOUS
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LET US QUOTE YOU ON
YOUR SEASON'S REQUIREMENTS
BEESWAX WANTED
FOR CASH OR TRADE

M. H. HUNT & SON
510 N. CEDAR
LANSING, MICH.

"Early Order" Discount Prices Continued Until June 1st

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10-frame Metal Cover Hives, 1-story, as low as.....$1.94 each
10-frame Wood Cover Hives, 1-story, as low as..... 1.60 each
10-frame Bodies with frames, as low as..... .88 each
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Colonies are nine weeks ahead in brood-rearing. (First swarming in Cincinnati, March 6th).

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HOT WEATHER

DURING SUMMER OF 1936

126° IN MICHIGAN

112° IN NEBRASKA

159° IN BRITISH GUIANA

3-Ply Airco Foundation

DID NOT MELT DOWN UNDER THESE CONDITIONS

NON-SAGGING — NON-STRETCHING — NON-WARPING

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TWO
3-ply Brood Combs equal
THREE
Brood Combs from ordinary foundation

The Most Satisfactory Foundation Under all Conditions--Buy 3-ply

Root QUALITY BEE SUPPLIES

The A. I. Root Co.
MEDINA, OHIO

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Package Bees and Queens

Direct from our yards to you on time

A LARGE SUPPLY—FINE 3-BANDED ITALIANS—FULL WEIGHT—LIGHT SHIPPING CRATES—SELECT LAYING QUEENS—COURTEOUS DEALINGS—FAST SERVICE—CERTAINLY THOSE ASSERTIONS MEAN SOMETHING TO YOU.

PRICES FOR GENUINE ITALIAN QUEENS—Postpaid to you

Shipment April 1 to June 1		Shipment June 1 to Oct. 1	
Untested	Each $ .75	Untested	Each $ .50
Tested	Each 1.50	Tested	Each 1.00

PACKAGE BEES—Express Charges Collect

Shipment April 1 to June 1		Shipment June 1 to Oct. 1	
2-lb. Package with Queen	Each $2.45	Each	$1.95
3-lb. Package with Queen	Each 3.15	Each	2.55
2-lb. Package without Queen	Each 1.70	Each	1.45
3-lb. Package without Queen	Each 2.40	Each	2.05
For each additional pound of bees	.70		.60

15% DISCOUNT TO DEALERS

RESERVE SHIPPING DATE—NO DISEASE KNOWN HERE—

Holder Apiaries, Citronelle, Ala.

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DEALERS ATTENTION

We have a special proposition of interest to all dealers or to all beekeepers who wish to become dealers of Beekeepers' Supplies. Write for information. All goods are GUARANTEED SATISFACTORY.

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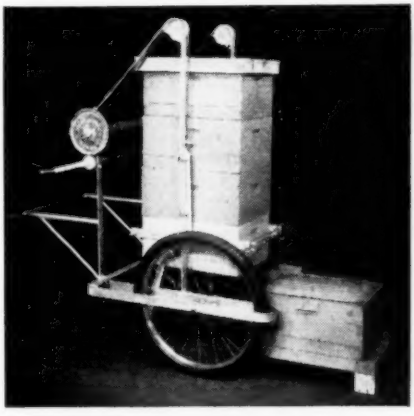

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3. **WIRE ORDERS SHIPPED**
Shipments guaranteed within two days—receipt of your order.

4. Every package guaranteed full weight, BABY BEES, with purely mated, three-banded, Italian queen.

5. EVERY PACKAGE shipped in a light and well-ventilated cage. Alloted amount of extra queens (specify such in your orders). 36-hour express service to Chicago and proportionately elsewhere.

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Every year we select and test out nothing but the best producers. Many of the beekeepers from the North send back their high producing queens in the fall. From all these our breeders are taken. In this we assure you a superior quality of high producing queens. NOTE: "I had a good crop from bees received from you May 8 last year. They averaged 270 pounds per package. Signed Leo C. Parent, Minn." "They were two-pound packages".

7. **DRONE BREEDERS**
We maintain a large number of colonies in our queen yards for the purpose of rearing drones. Their mothers have proved their honey getting qualities in 1936. See number 6 above.

8. Let our queens guide your honey production. You too will be pleased with the results.

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May Delivery

2 pound package with queen	$2.45
3 " " " "	3.15
Extra queens	.75

June Delivery

2 pound package with queen	$1.95
3 " " " "	2.55
Extra queens	.50

15% discount to authorized dealers.

10. **SUPPLIES**
Our factory is equipped with all electric machinery. Our men are thoroughly trained. Our prices are right. Send your list of supplies needed and you will buy—Cypress lumber.

11. **OVERBEY APIARIES, Bunkie, La.**
Telephone day 177. Night 176.

ITALIAN QUEENS AND PACKAGE BEES

SHASTA APIARIES

SHASTA, SHASTA CO., CALIF.

Shipments with State Inspection Certificate
Marketing Agreement Prices

GEO. W. MOORE F. W. CHAPMAN

CARNIOLAN & AUSTRIAN QUEENS

Our queens are hardy, gentle, prolific, great honey-gatherers, builders of very white combs. Use mostly wax in place of propolis. No foulbrood here. No package bees.

Untested Queens, June 1 to Nov. 1, 50c.

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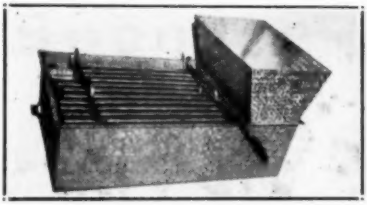

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Superior Honey Company,
The A. I. Root Company,
Dadant & Sons
A. G. Woodman & Co.
or

The Brand Honey Farms

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Package BEES and QUEENS

Unbeaten Anywhere

Booked up on comb packages. Any date open for combless packages.

2-lb. pkg. with select queen	$2.45
3-lb. " " " "	3.15
Queens	.75

Wire your order or telephone us No. 24.

Shoot your queen orders to us at 50c each, starting June 1st. Our medium light and dark queens are just what you want, if you want all the crop.

Honey Bowl Apiaries

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Mack's Queens

(They Speak for Themselves)

Big, hardy Northern-bred 3-band stock. Mack has spent the past 21 years developing a bee for the most particular beekeeper. If he had failed to produce really Good Stock he would have been out of the Game long ago. That's why we say "They Speak for Themselves". No more orders accepted for delivery prior to May 15th.

May prices 75c each.

HERMAN McCONNELL

(The Bee & Honey Man)
ROBINSON Rte 2 ILLINOIS

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U. S. GOVERNMENT REPORT

Information from Producing Areas (first half of April).

SUMMARY.—Early expectations for an unusually early spring east of the Pacific Coast have been changed by cool, wet weather during recent weeks, which have kept bees in the hives and greatly retarded brood-rearing. In the more southern states where colonies previously were strong, the confinement to the hives resulted in a large amount of swarming. Maples, elms, willows and other early sources of nectar and pollen are blooming later than anticipated, and this fact, together with unfavorable weather conditions, has resulted in spring dwindling in many colonies which came through the winter in fairly good shape, but with very light stores. Commercial beekeepers have done a great deal of feeding. Package bee men and queen breeders in the South are finding it difficult to develop their activities rapidly enough to take care of their orders, and many shipments will necessarily be delayed. However, many northern beekeepers now do not want packages as early as they had originally anticipated.

Stocks of honey are rapidly lessening but more honey is coming to light in certain States such as Minnesota than had been known about earlier, and the placing of this honey on the market has caused prices to sag slightly in some areas. Honey is selling fairly well at retail, but the wholesale demand is rather quiet. Comb honey continues in light demand with stocks almost exhausted everywhere. New crop honey from California may be three to four weeks late in coming on the market. Crop prospects in the West are above those of last year, but are generally less encouraging in the Clover Belt.

Monthly Report of Honey Producers

Early in April we sent the following questions to honey producers: 1. What is your estimate, revised to date, of the amount of last year's honey crop not yet sold in your locality? Give answer in per cent. 2. At what price has honey been sold or contracted for, if any, in large lots (carload or less) in your locality during the past month for (a) extracted honey, per pound? (b) comb honey, fancy and No. 1, per case? 3. What are prices when sold to grocers in case lots of (a) extracted honey in 5-lb. pails, or other retail packages in terms of 5-lb. pails? (b) comb honey, fancy and No. 1, per case? 4. What is the retail price to consumers in your locality of (a) extracted honey in 5-lb. pails, or other retail packages in terms of 5-lb. pails? (b) comb honey, fancy and No. 1, per section? 5. How is honey now moving on the market in your locality? Give answer in one word, as slow, fair or rapid. 6. What is the condition of the honey plants at this time in your locality, as compared with the average? Give answer in per cent. 7. What is the present condition of the colonies, as compared with normal, considering the number and age of the bees and the supply of stores? Give answer in per cent. 8. What is the per cent of winter and spring loss to date (if any) in your locality? The answers returned are tabulated as follows:

	1936 hold-over.	Large lots. Ex.	Large lots. Comb.	To grocers. Ex.	To grocers. Comb.	To retailers. Ex.	To retailers. Comb.	Move-ment	Cond. plants.	Cond. colo.	Winter loss.
SC-Ala. (J. M. Cutts)	0			.55		.65		Fair	80	70	1
SE-Ala. (H. C. Short)						.60		Fair	100	85	2
B. C. (A. W. Finlay)	10	.09¾		.70		.85		Fair	100	100	15
S-Calif. (L. L. Andrews)	2	.06				.62	.15	Fair	100	50	35
C-Calif. (Davis Bros.)		.06⅜		.43		.55	.20	Fair	80	80	10
SE-Colo. (Otis E. Adcock)	10			.43		.50		Slow	100	100	6
E-Conn. (Allen Latham)	10	.07½		.75	4.50	.90	.27	Fair	100	100	
C-Conn. (A. W. Yates)	5	.07	3.75	.70	4.50	1.00	.25	Fair	100	100	
S-Fla. (C. C. Cook)	0	.07		.45		.60		Fair	100	100	10
SE-Ga. (J. J. Wilder)	1	.07		.50		.65		Fair	100	95	5
NC-Ind. (T. C. Johnson)	5			.55	3.60	.65	.20	Fair	100	100	0
NW-Ind. (E. S. Miller)	10			.50	3.00	.65	.15	Fair	50	100	10
W-Iowa (E. G. Brown)	0			.55	3.60	.65	.22	Rapid	10	75	25
S-La. (E. C. Davis)	2			.40		.55		Fair	100	100	10
N-Maine (O. B. Griffin)	0				4.90		.30	Slow	80	90	10
C-Md. (S. G. Crocker)				.60	4.00	.75	.25	Fair	90	80	5
N-Mich. (Ira D. Bartlett)	20			.45		.60		Fair	90	60	25
S-Mich. (Floyd Markham)	5	.07½		.55		.75	.20	Fair	40	125	0
C-Mich. (E. D. Townsend)	4	.08						Fair	80	100	
E-Minn. (Francis Jager)		.08½						Good		100	
E-Minn. (Floyd W. Ray)		.06½	3.00	.47	3.35	.57	.21	Fair	100	100	5
W-Minn. (B. L. Morehouse)	10			.55		.75		Slow	80	90	2
C-Nebr. (J. H. Wagner)	0					.69	.20	Slow	75	70	15
W-Nev. (Mrs. E. G. Norton)	0								80		20
W-Nev. (Geo. G. Schweis)						.45	.20	Fair	100	90	5
W-N. M. (C. A. Baltzley)	0	.06	3.00		3.60	.65	.21	Slow	80	80	30
W-N. Y. (Adams & Myers)	0			.52		.75		Fair		100	0
NW-N. Y. (Geo. B. Howe)				.48		.60	.25	Fair		95	5
C-N. Y. (F. W. Lesser)	10	.07¾	4.00	.52		.60		Slow	75	90	8
SE-N. C. (W. J. Martin)	0	.07½		.70		.85	.20	Fair	100	100	3
NC-Okla. (C. F. Stiles)	5			.47		.67	.19	Fair	80	80	
C-Okla. (C. A. Baltzley)	0	.06¼	2.60		3.60	.63	.20	Fair	75	70	15
W-Ore. (H. A. Scullen)	10			.40		.55		Fair	80	100	5
C-Pa. (Harry Beaver)	2			.50	3.00	.65	.15	Slow		90	2
SE-Pa. (D. C. Gilham)	20			.70	4.00	1.00	.25	Fair	90	90	2
W-S. C. (E. S. Prevost)	0							Rapid	95	95	5
C-Tenn. (J. M. Buchanan)	0					.75		Slow	100	95	
E-Tenn. (W. L. Walling)	0					.85		Fair	95	100	0
C-Texas (T. A. Bowden)	5			.45		.55		Fair	100	110	2
S-Texas (H. B. Parks)	10			.35		.47		Fair	90	90	2
W-Vt. (Phillip Crane)	5		4.12		4.25	1.00	.28	Rapid	75	98	3
C-Wash. (G. W. B. Saxton)	25			.43		.50		Fair	100	100	15
SE-Wash. (Ryon R. Isbell)	5			.45		.53		Fair	90	95	5
N-W. Va. (W. C. Griffith)	0					.75	.23	Slow	100	75	5
SE-Wisc. (N. E. France)	0					.57		Fair			15
W-Wisc. (E. H. Hanselman)	0								50	80	

Watch this Space for BARGAINS!

• • •

WHITE BEE SUITS
Made by Lee

WE HAVE 24 SUITS
Size 38, will fit persons weighing approximately 130-135 pounds

SALE PRICE $1.75
Not postpaid. Mail wt. 3 lbs.

• • •

SEE ADVERTISEMENT
April issue, page 242
We still have some
PLAIN SECTION SUPERS
each 75 cents

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The A. I. Root Co.
MEDINA, OHIO

Lotz Sections — The World's Best

KNOWN BY THEIR RECORD

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Be guided by the experience of others and consider these vital points:

- Best available material
- Accurate dimensions
- Square folding V-grooves
- Perfect fitting Dovetails
- Glossy Polish

ALL of these things are true of LOTZ SECTIONS

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Get our free samples and quotations on quantity orders.
INDIVIDUAL SECTIONS of comb honey are preferred by many hotels, restaurants, etc. Write us about them or any other special size sections.

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AUGUST LOTZ COMPANY
BOYD, WIS.

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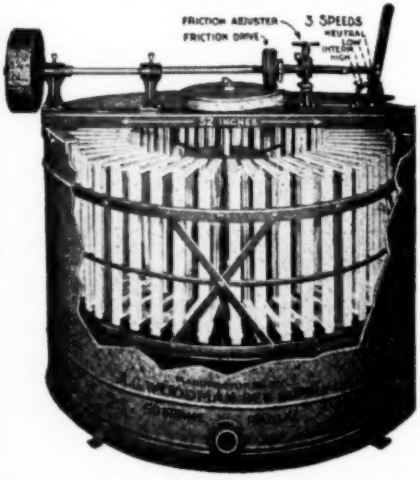
ANSWER YOUR CALL PAGE 312
PROGRESSIVE APIARIES



30 and 50 Frame Radial Honey Extractors

With Three Definite Speeds, to get the bulk of the honey out in Low and to finish combs dry in High. The extra honey secured in extensive operations is considerable. Load 30 or 50 Frames and save time and loss motion in each stopping, unloading, reloading and starting again, four to six times for the same amount of honey. Spend this time uncapping the next load of combs.
Send for booklet showing 10 different styles and sizes of extractors and extracting equipment.

A. G. Woodman Co., Grand Rapids, Mich. U.S.A.

"THE BEST EXTRACTOR ---Regardless of Price"

"I have just finished extracting over 70,000 pounds of honey this season and have used one of your new 8-frame 'LIFETIME' extractors. I feel that I owe you a great deal of praise for perfecting such a great machine.

"It's simple construction makes it easy to clean and it's sturdy construction will surely make it last a lifetime.

"In my opinion, it is the **best extractor on the market, regardless of price.**" (Signed)

CLYDE GAULT

We manufacture and distribute a complete line of beekeeping equipment at moderate prices. We are always in the market for beeswax at highest market prices.

SUPERIOR HONEY COMPANY

Factory at OGDEN, UTAH

Branches at Idaho Falls, Idaho, and Los Angeles, California

Prices

Lumber has advanced — Wax has advanced
Steel has advanced — Nails have advanced
Boxes have advanced — Wages have advanced

THE SEASON HAS ADVANCED

BUT we are still holding down our rock-bottom prices. Better buy soon as we will eventually have to advance our prices. Our factory is operating to full capacity with ample material on hand. Free catalog if you don't have one.

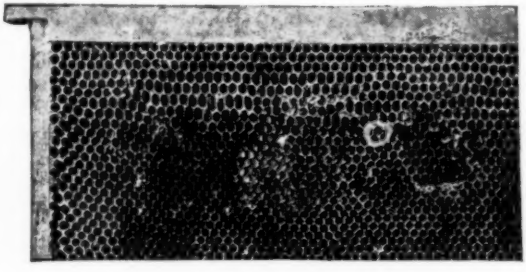
THE WALTER T. KELLEY CO.

Manufacturers of Bee Supplies — PADUCAH, KENTUCKY

IN HEAT OR COLD
THE CRIMPS WILL HOLD

Beat the Drones

With Dadant's Crimp-wired Foundation



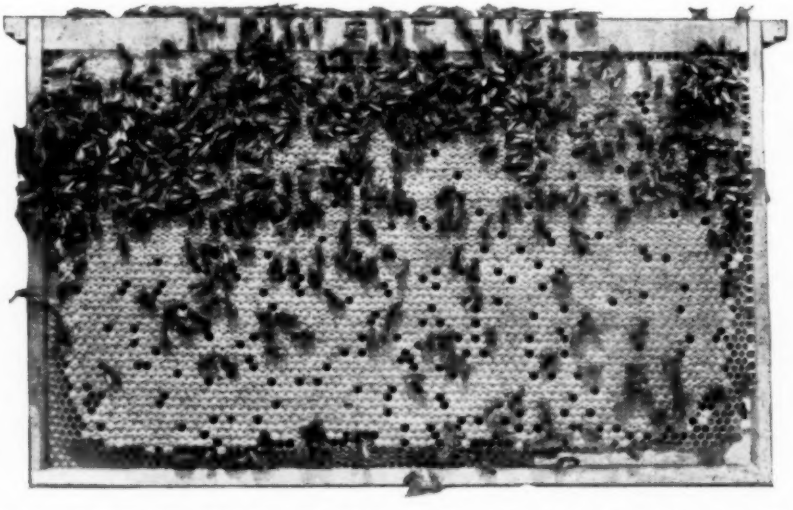
Replace your poorly built combs,—combs with drone cells and stretched cells,—with combs built from Dadant's Crimp-wired Foundation. How much space is there in your combs the queens cannot use? Space that reduces the number of bees at the honeyflow. Combs sagged from the weight of brood and honey; with areas of drone cells; with useless places the bees bridge over with thickened wax; places of no value.

There is no lost space in combs from Dadant's Crimp-wired Foundation. They have so little room for drone cells that the poor fellows have a hard time getting born. Colonies build up quickly from full combs of all worker cells; supers fill quickly. New combs, with 8 or 9 pounds of honey, leave the hive for the extracting room without a sign of slip or sag. They will stand load after load of either brood or honey and will last as long as your combs are in use. You can depend on them.

DADANT & SONS

HAMILTON, ILLINOIS

Makers of Famous Foundations—Crimp-Wired, Plain, Surplus



Beeswax Wanted—We buy at all times. Drop us a card, stating quantity you have to offer.

Vol. 65
No. 5

Gleanings
in Bee Culture

May
1937

The Migratory State

W. Leroy Bell

To Be a Commercial Beekeeper in California One Must Migrate

W. Leroy Bell has practiced commercial beekeeping in Idaho and California since 1922. Earlier in life he helped his father keep bees in Arizona. The senior Mr. Bell served as an apprentice under James Heddon of Michigan and now devotes his time to growing queens in the Bell queen-rearing apiaries.

I believe the above title is a very fitting name for California, judging from the foreign license plates one sees on the highways. It would seem that a large part of the population of the middle western and eastern states migrate each winter to the Sunshine State to spend a few months away from the snow and cold of less favored climes!

Strange as it may seem, many of these people stay to make their livelihood from the many and varied industries that are to be found in this state. I know this to be true in the beekeeping industry, for, of the hundreds of beekeepers that I am personally acquainted with, very few are "native sons," but have come to California from the East. Because they have located in California, don't think for a minute that they are not still migrators, for to be a beekeeper in this state, one must migrate.

It may seem queer that in a land of almost continual sunshine, and little cold weather, it would ever be necessary for the beekeeper to move his bees. But moving bees is done so often here, that some one even suggested that beehives be equipped with wheels so that they would not have to be loaded on to trucks so often.

The necessity of moving bees so much in California, comes from the character of our honey flows, the distribution of nectar yielding flora, and to the variation of rainfall from year to year. Our honey flows generally are of short duration, and in some cases come at such an early date in the spring as to make it impossible for bees to build up to proper strength to gather a maximum crop.

Difficulties in Developing Strong Colonies

For example, our orange, which is one of the major honey plants, begins blossoming anywhere from March 25 to April 25, with the average at about April 10. In the orange belt at this season it is generally cool and foggy during a part of each day, with night temperatures so cold that bees cannot

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expand the brood area as rapidly as is necessary to reach proper strength for the honey flow. Since this flow is very fast and quite short, bees do not have time to build up after it starts and still get a crop.

There are two methods the beekeeper can use, one of which he must use, if he expects to harvest a paying crop from this flow! He can purchase package bees to "boost" his colonies to the proper strength, or, he can have his bees located in some section where there is an earlier source of pollen and nectar for a national build-up.

The geography of the state changes so rapidly that you may find an entirely different climate within a few miles, depending, of course, from where you start. Fortunately, within operating distance of the orange belt we have the desert valleys which abound with nectar and pollen plants. These plants generally supply the necessary flow prior to the oranges and build up wonderful colonies and sometimes even give some surplus honey. Practically all these desert locations are accessible over paved roads, and many beekeepers take advantage of this natural condition rather than purchase package bees. When we say "within operating distance" we mean a distance that can be covered by fast truck between sundown and sunrise of the following morning!

There is another early build-up flow that some beekeepers take advantage of, and that is in the almond grove districts of the central coast counties. Although this is a little further away, it still can be made in a night's run with good trucks.

We believe this method of taking advantage of a natural build-up flow, is better than purchasing package bees. In the first place, it is hard to get bees from any source at this early date, and I believe the expense would be greater. It is also hard to tell just what date to have bees arrive, since the blossoming period varies so greatly from year to year. When the bees are built up on a natural flow, they can be left there until the orange blossoms are beginning to open, then rushed in as fast as possible.

Moving from Orange to Sage

After the orange blossom period ends, bees must be moved again, since there will be no more honey in this locality till the following year. Sometimes this move must be made in a hurry, for if the season is one of ample rainfall, the sages of the hills will give a wonderful crop of water white honey, and often this flow will overlap that of the oranges, making it imperative that the bees be moved quickly in order to get in on the most of it.

In favorable years the sages (depending on location) may give a much longer flow than the oranges, so that even small colonies will produce remarkable crops. However, this plant seems to be quite temperamental and can be very disappointing. I have seen acres of sage in full blossom, and from all appearances should be full of honey, yet the bees would not store a pound of surplus!

In some locations is found the California buckwheat (which is not a buckwheat at all) on the same range with the sage, and a flow from this plant may be expected following the sage. Strange as it may seem, this plant does not yield in all locations, so again we must move the bees to a buckwheat range that will yield.

There are many varieties of buckwheat belonging to the family **Polygonaceae** which to the ordinary beekeeper are known as follows: snow ball, desert, late, or big buckwheat, Indian, or salt sage, and wire weed. There may be still others of this family that I am not familiar with, but any or all of the above have been known to give good crops of honey during favorable years. **Eriogonum fasciculatum,** sometimes referred to as "flat tops," is undoubtedly one of the most important of this family.

When conditions are such that neither sage nor buckwheat look promising, we have to take other courses and try other honey sources. There are the inland valleys where we may go to the alfalfa fields. Since this territory is limited, the range is often overstocked and no one harvests much honey.

Then there is the cotton belt of the San Joaquin Valley, which is a large territory. Thousands of colonies may be placed here and harvest a crop from this plant, varying in quantity from a few pounds to a case (120 pounds per colony), depending on location and condition of bees.

Still another source that may be available is the yellow star thistle which abounds in the Sacramento Valley and is considered a major honey plant. Since this section is farther away, very few of the beekeepers

from the orange belt attempt to migrate to the thistle, except as a last resort when all other sources fail.

Some Moves May Not Pay

The migratory bee business is not so bad if one could be assured of a crop on every move. But this is not always the case and many moves are made at an absolute loss to the operator. Sometimes the loss is traceable to the beekeeper himself, in not taking proper care of his colonies, while some of the losses come from failure of plants to yield. Many times after a flow, especially true in the oranges, bees are in no condition for another flow at once. Queens cut down on brood-rearing during the heavy flow. Perhaps this is the beekeeper's fault in not having young, vigorous queens in his colonies. Still it may be the shortage of pollen during the orange flow that is responsible for the queen's "slacking off." This last condition is quite likely to be the case, since all cover crops, which supply the largest part of pollen, have been turned under by this time.

If the migratory beekeeper is wise, he will, upon finding his colonies low in brood, make his next move to some section where his bees can build up again for a later flow, rather than attempt to harvest a crop from another source with bees in poor condition. Very few do this, however, and it is my belief that this oversight is one factor that often means the difference between black ink or red on the yearbook.

Every move costs money, so better miss one flow if by so doing you can build your bees up to take full advantage of one to come a little later. Many nectar sources of commercial value are lacking in pollen, and every good beekeeper knows that it takes pollen, and lots of it, to raise bees. For this reason, one had better pass up a nectar flow if bees are in a run-down condition and try for a minor flow where there will be plenty of pollen in order to be ready for the flow that is to come at a later date.

This yard produced the largest crop per colony that I have ever harvested from the orange blossoms. 98 colonies produced 14,000 of honey in 1928. I had only two swarms from this apiary.

Buckwheat and white sage honey from this apiary would spread a lot of bread, for the kids, perhaps thousands of miles away, who finally ate it.

When we have harvested all the honey, from the numerous sources that we dare to remove and still leave enough for winter stores, we do our requeening. This is generally planned for the last honey-flow, so it can be accomplished without robbing, and while there are plenty of drones for mating queens.

Annual Requeening Essential

In the past, requeening via the ripe cell method was probably the most popular system used by the large honey producers of California, and is still practiced by many. This system is quite satisfactory, providing the individual has the necessary knowledge, and will use great care in producing his queen cells. It is also nec-

(Continued on page 318)

Latest Facts on Pollen Substitutes

Mykola H. Haydak

Entomology Division, University Farm,
St. Paul, Minnesota

Pollen Substitutes Must be Easily Available and Reasonably Cheap

When one looks through the old volumes of bee journals searching for information about pollen substitutes, one finds out that the interest in this question manifested itself from the start. However, one is likely to notice that this interest appeared in certain cycles; some years almost in every number there was a mention about pollen substitutes, other years there were only a couple of lines written on the subject.

It seems to me that now we are on the top of the ascending wave of the cycle. Numerous letters were written to our division asking for information about pollen substitutes. The bee journals have received plenty of requests for such information. This prompted me to write the present article.

The readers of this journal are probably familiar with the experiments which were conducted here during the previous years. Last year we tried several other foods for bees. The technic was the same, namely, pollen substitutes were fed to young bees which had never eaten pollen. They were kept in special cages. The development of the bees, their behavior, mortality, building activity and brood-rearing were studied. The quality and quantity of the young bees produced were established.

Those colonies which were fed soybean flour alone, or soybean meal and cottonseed meal, each mixed with skim milk powder, produced young bees. The latter did not differ substantially from those reared by the control, pollen-fed colony, only the number of bees produced by the pollen substitutes-fed colonies was smaller than that in the control colony.

The bees which were fed soybean meal, peanut meal, linseed meal alone, and linseed meal mixed with skim milk powder developed their bodies normally but did not produce young bees.

The lowest mortality was in the linseed meal-fed colony, the highest in that which had soybean meal for food. The behavior and the building activity were normal in all the experimental colonies.

In selecting a pollen substitute for general use by beekeepers, one has to take into consideration the following qualifications:

1. The food must be easily available.
2. It must be cheap.

Judging from these viewpoints the following pollen substitutes can be tried: cottonseed meal, soybean meal, soybean flour, meat scrap, each mixed with skim milk powder; fresh whole milk. One may use any brand of soybean meal which was produced by the expeller method of oil extraction (heat method). The meal must be fine, powder-like. Otherwise, one has to powder it in order to enable bees to collect the meal and bring it to the hive. We used four parts of a sifted soybean meal to one part of skim milk powder by weight. One may use any brand of skim milk powder. Because our experiments were conducted inside, we had to place the mixture in the cells of a comb. Therefore, we used one part of soybean-meal-skim-milk-powder mixture to four parts of honey by weight. After mixing the ingredients, we distributed the mix-

ture to the cells of a comb by means of a spatula (a blunt knife will do the job) and placed the comb into the experimental hive. Soybean flour mixed with honey (one part of soybean flour to four parts of honey by weight) may be given to bees. The results can be improved by mixing one part of skim milk powder to four parts of soybean flour by weight. We used soybean flour produced from beans from which the oil was partly taken out (containing about 5 per cent of fat.) Cottonseed meal, mixed with skim milk powder in the same proportion as the soybean meal, was found to be better for brood-rearing than when fed alone. Mixtures of soybean flour, soybean meal, cottonseed meal and meat scrap in any proportion with an addition of 20 per cent of skim milk powder might also give a quite satisfactory pollen substitute.

In the spring, as soon as warm weather arrives, one may offer those mixtures in the open as dry pollen substitutes. Spread several pounds of the mixture in shallow boxes and let the bees collect it like they collect pollen. It is possible that the pollen substitute will harden in the cells. During an inspection of your colonies note whether this is the case. Watch the entrances and notice whether bees carry out hard clumps of pollen substitutes. In such a case send those clumps to us for an examination.

In case you would like to give a pollen substitute in hives, it is advisable to mix it with commercial invert* in the same proportion as we used for honey. I never tried to mix pollen substitutes with sugar solution. This year we are going to try it. The results will be published later. If you plan to use honey, the latter must be from disease-free colonies. Otherwise you may spread the American foulbrood in your apiary. You may sterilize your honey by adding one-fifth of water, bringing it to the boil and then boiling it for at least 15 minutes. During the process of heating and boiling the honey must be constantly stirred to prevent burning.

Fresh whole milk may be mixed either directly with sugar (four parts of milk to one part of sugar by volume) or with a concentrated sugar solution (two parts of sugar to one part of water). In the latter case equal volumes of milk and sugar solution can be used. I think that fresh skim milk can be substituted for fresh whole milk with an advantage to the beekeeper and without any harm to bees. The milk food may be either poured into the cells of a comb, or combs dipped in this solution may be given to bees, or the food may be fed in feeders above the brood nest (over the hole in the inner cover). It is better to give a small amount of this food at the beginning in order to find out how quickly bees are taking the mixture. In my experiments sour (not putrid) milk did not harm the bees.

I would like to add a personal appeal to those beekeepers who will try to feed pollen substitutes to their bees. Please be so kind as to note the influence of pollen substitutes on the brood-rearing activity of bees, their behavior, health, development, and possibly the honey production in comparison with the unfed colonies. Write your experiences directly to me (Entomology Division, University Farm, St. Paul, Minnesota), or publish them in one of the bee journals. Only working together can we succeed in finding out more about the value of feeding pollen substitutes to bees under natural conditions.

St. Paul, Minnesota.

*Commercial product which results from the breaking of the sucrose molecule, under the influence of an acid, into one molecule of glucose and one of fructose.

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How to Send Specimens of Brood to Bee Culture Laboratory

An excerpt from a recent letter from James I. Hambleton, National Agricultural Research Center, Beltsville, Md., reads as follows: "On page 92 of your book, 'Starting Right with Bees', you recommend, in sending samples to the Bee Culture Laboratory, that combs should be wrapped in paraffin or cellophane papers. We have always cautioned beekeepers not to use a waterproof or airtight paper for wrapping samples since it promotes the growth of moulds and other organisms often rendering the samples useless for the purpose of diagnosis. Ordinary wrapping or newspaper is best. We also always caution against shipping samples in tin or glass since here again the growth of extraneous organisms is promoted, which, of course, greatly complicates our work and renders a diagnosis less valuable".

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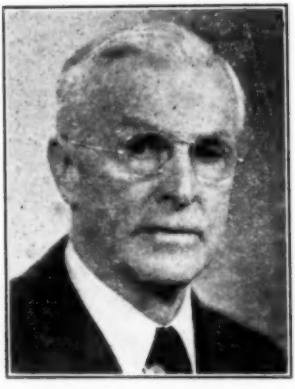
Producing Queens and Honey

With Special Reference to the Double Duty Hive With Recent Improvements



James W. Bain

Up-to-date beekeepers are demanding the best in bees and equipment. They are no longer content with the older methods of beekeeping. Hives and equipment must be strictly modern. Bees must be of the best strain obtainable and queens of the highest quality.

The queen breeder producing from 30 to 40 cells from one colony all of the same age will soon step out of the picture because this is deviating too far from nature's way. Queen breeders should bear in mind that quality rather than quantity is to be preferred. Over-taxing the capacity of any colony in cell building, will result in a large percentage of drone layers or queens soon to be superseded.

Advantages of the Double Duty Hive

The longer we use the Double Duty hive as described in May, 1936, Gleanings, pages 265-267, the more its possibilities unfold. Never has there been any queen-rearing hive or system of queen-rearing brought to our attention that in any way compares with the simplicity of operation, and the quality and quantity of queens produced, as the Double Duty queen-rearing hive makes possible. While it is designed primarily for the production of queens, a colony in this hive will produce more surplus honey than other colonies in ordinary hives.

These hives supply us with thousands of well-reared and well-fed drones which will fly earlier and later than will drones from other colonies. Drones are allowed to remain in these hives long after they have been destroyed in other hives. This assures us of desirable matings the entire season.

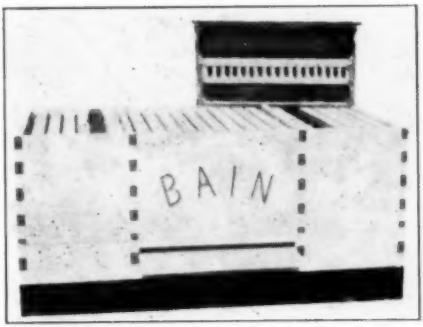
Formerly the three entrances were on one side of the hive. We are now building this hive with the two entrances to the cell-building units on the side of the hive opposite to the main or middle entrance. This does not change the basic principle of the hive but allows us to make some manipulations with greater assurance of success. For example, late in the evening we can take frames of bees from the super of a Double Duty hive, or, from other hives and shake the bees off in front of the cell-building units containing unsealed cells without danger of the bees going into the middle compartment. This results in better nourished cells. This new arrangement of entrances admits of more uniform ventilation. If a virgin should emerge from a cell in a cell-building compartment and be overlooked, after making a flight she will naturally return to the same compartment, thus eliminating the danger of returning to the central ten-frame compartment and destroying the reigning queen.

The Grafting Box

We find this to be one of the most useful and indispensable appliances used in a queen-rearing yard. In using the grafting box we select from three to four frames containing combs well supplied with freshly gathered nectar and pollen, together with three to four pounds of bees (the more young bees the better) depending on the number of cells to be grafted. We usually stock the grafting box with bees between twelve and one o'clock and put it in a well ventilated place away from contact with outside bees. About 3 to 4 P. M. we are ready to make our graft. Two or more bars of cells may be given to the bees in the grafting box at one time, depending on the requirements.

Prepare as many bars of artificial queen cell cups as are needed. Next remove a frame from the nucleus hive

containing the breeding queen. Brush the bees off carefully and wrap the frame in a cloth to prevent chilling or injury while being carried to the place where the graft is to be made. With everything in readiness transfer to each cell cup a well fed larva using a grafting needle. As soon as the graft is completed place the bar of cells in the frame designed to receive it. Raise the lid from the side of the grafting box as though it were hinged on the opposite side, slip the frame in the space left in the box to receive it, close the lid, and your graft is complete.



Double Duty hive showing entrance to middle compartment containing queen.

Leave the cells in the grafting box until the following morning. Having previously arranged the cell-building units to receive the accepted cell cups, carry the box to the cell-building colonies, remove the cell bar frames with all adhering bees from the box to the cell-building units prepared to receive them. Shake the remaining bees in the grafting box in front of the cell-building units. The old bees will return to their original location. The young bees will be readily accepted by the bees in the cell-building units. In making a graft of several bars we find it advantageous to feed the bees in the grafting box a quart jar of syrup made of two parts water to one part of sugar.

Cell-Building Units

Do not give to each cell-building unit of the same hive a bar of accepted cells at the same time. One or the other may be given a bar of cells every two or three days as requirement demands. It is very important to keep the cell-building units well stocked with brood in all stages of development. In placing a bar of accepted cells in a cell-building unit always arrange the cell bar frame to be the second frame from the queen excluding partition. When two cell bars are in one unit keep frame well supplied with brood between the cell bars as well as on each side.

The cell-building units must be well fed during the time there are unsealed cells unless nectar is being gathered abundantly. **Do not neglect this.** We recommend and always feed diluted honey; but to the amateur, we would advise the use of sugar syrup made of one part sugar to one part water by measure.

Preparation of Nuclei Mating Hives

Note the simplicity of our nuclei system. Early in the spring we place shallow extracting supers, as designed in the illustration, holding 20 nuclei frames each, on strong colonies to be filled with honey and brood. This arrangement provides room for honey gathered from dandelion and fruit bloom and at the same time supplies us with the necessary requirements used in forming nuclei. As soon as the young bees begin emerging from the cells of these combs we are ready to make up our nuclei to receive the first lot of virgins. One frame with emerging or well matured brood together with two frames well stocked with

Same hive showing entrances to cell-building units which are separated from middle compartment by perpendicular queen excluders.

food is sufficient to form a good nucleus. Forming as many nuclei as are required to accommodate cells or virgins at hand, we fill the feeder bottles in the mating nuclei with water, close the entrances, open the ventilators at the rear of the hives, then put them in a cool, well ventilated place allowing no contact with outside bees. Assuming that we formed the nuclei on the first day of the week,

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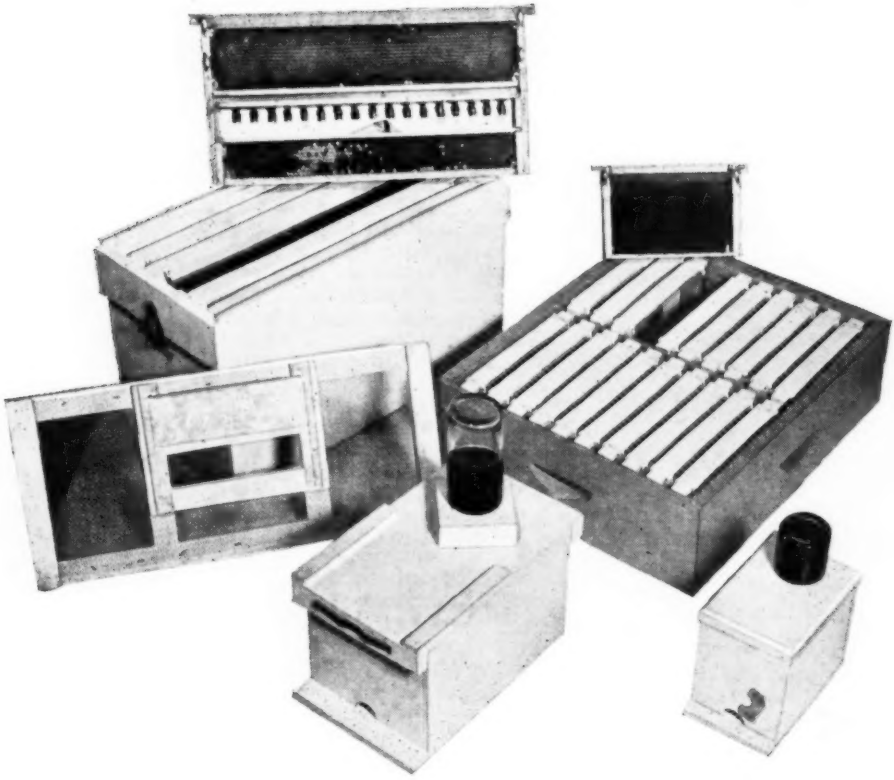

Upper left corner shows Grafting Box and Cover, with bar of cell cups. Upper right, a super of small frames for mating hives. Lower center, queen mating hive to take these frames. Lower right, mating hive holding two 4"x5" sections, also feeder.

on the second day we would remove the feeder bottle long enough to drop a virgin in the opening of each nucleus and the nuclei are made up. On the third day just after it is too dark for bees to fly, place the nuclei on their permanent stands and at the same time release the bees and close the ventilators at the rear. Don't omit this.

Note that each hive accommodates four frames although we use but three in a hive, unless nectar is being gathered to the extent that there is danger of the bees occupying the space left vacant to accommodate the fourth frame. With but three frames it is unnecessary to remove a frame from the hive to find the queen. Slip the frames apart, look down between the frames and if done quickly and carefully you will invariably see the queen, making necessary only the removal of the frame she is on. The advantage of finding the queen without removing the frames is very important during the season when danger of robbing is most likely.

Many and various designs of nuclei hives have been given to the beekeepers but after trying different types of hives both large and small we find the one as shown in the illustration comes nearest the requirements of a simple and practical hive of any we have ever used. Queen breeders of wide experience can use a hive of much less capacity with satisfactory results, in fact, we use a hive holding but two 4x5 sections with the best of success but would not recommend it to an amateur. For more detailed information we refer you to Gleanings in Bee Culture June, 1934, and May, 1936.

Marion, Ohio.

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Two-Queen Vs. Single-Queen Colonies

Ben M. Knutson

What Every Beekeeper is Striving for is the Maximum Yield per Man Hour of Labor

Do you like the feeling when your bees have produced a good crop? Do you like to think that you operated them efficiently? Of course, all beekeepers do. We like to think that our own system is a good one. But at the same time we are all looking for something better.

So it seems to me that a recent article should have received more attention, at least more comment. It is a very thorough and carefully prepared paper by a scientific man. I am referring to Dr. C. L. Farrar's article, "Two-Queen vs. Single-Queen Colony Management" in Gleanings, October, 1936. Even though some may not agree with his conclusions it still can teach much.

The idea of multiple queen colonies is not new. Dr. C. C. Miller long ago said that any number of queens could be maintained in a colony provided they were kept far enough apart. Mr. Herman Rauchfuss in 1932 told of having as many as five queens in one colony. Now, apparently, Dr. Farrar is trying to develop the two-queen idea in such a way as to give us a system suitable for commercial production.

The average honey producer does not have time during the summer rush to carry on experiments, much as he might like to do so, and it is to such men as Farrar that he has to look for new ideas. We do have time during the winter months, however, to study these articles, analyze them, and later apply what we learn. That is what I have tried to do. And in studying this report certain questions have arisen.

A Fair Comparison Essential

Judging from the title of Dr. Farrar's article, it is essentially a comparison of one-queen and two-queen colonies. Yet, the one-queen colony was seriously handicapped each year (even though it was the normal condition) by having only a negligible amount of pollen for the spring build-up, while the colony destined to have two queens was evidently supplied with about all the pollen it could use. At the very outset, then, the better showing made by the two-queen colony might be attributed to a lack of pollen in one case and an abundance of it in the other. It strikes me that a fair comparison can be arrived at only by giving each an equal chance. Either an abundance for both or a negligible amount for both. As it was, the two-queen colony was able to build up **for** the honey flow while the one-queen colony had to build up **on** the honey flow. That was especially true in 1935 when pollen was not available till the last of May.

It also seems to me that the winter and spring consumption of honey should have been taken into consideration. In 1934, when measurements were started on May 14, the colony, destined to have two queens, due to its pollen reserve, was approximately twice as strong as the single-queen colony and it is only reasonable to assume that it had up to that time used at least twice as much honey. Likewise, in 1935, on June 21, the two-queen colony, due to its pollen reserve, had four times the strength of the single-queen colony. So it must have used at least four times as much honey during the building-up period. Just how much this extra consumption amounted too would be hard to guess, but it very likely was a great deal. In comparing the yields of colonies for any honey flow one should surely take into account the stores consumed in bringing them up to that honey flow. Had this been done the single-queen colony records would look more favorable.

It is interesting to note that both years when the flow was light the strong two-queen colony gathered more honey per 1000 bees, and, contrariwise, when the flow was good just the opposite was true, the one-queen colony gathered more surplus per 1000 bees. Examples of the latter,

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—Aug. 7, 1934, was the end of a 12-day period during which the one-queen colony stored 1.84 pounds per 1000 bees, while the two-queen colony gathered 1.22 pounds per 1000 bees. This condition was maintained for almost the entire duration of the main flow though the difference in storing power was not so great at other dates. Aug. 14, 1935, was the end of a 14-day period during which the one-queen colony stored 2.28 pounds surplus per 1000 bees, while the two-queen colony gathered 1.69 pounds surplus per 1000 bees. In 1935, this condition existed for just a short time at the end of the main flow. Prior to that time the single-queen colony was below storing strength. On July 17, it had only 7900 bees.

Are Over-Populous Colonies Desirable?

Would not these figures indicate that extra-populous colonies are not desirable during the main flow? Is it not possible that bees have traffic problems within the hive and that a less congested colony will work more efficiently when business is rushing? Do not these figures cast a doubt upon Dr. Farrar's statement, "one strong colony will produce more honey than two smaller colonies containing the same total number of bees?" Of course, the double-strength colony will without question store a greater surplus than the normal strength colony. The per colony yield is bound to be greater. Any beekeeper knows that it takes field bees to gather nectar and the more of these he has during the flow the greater his crop. But the per colony yield is not his greatest consideration, strange as it may sound! What every beekeeper is striving for is a maximum yield per man hour of labor. He wants a system which will give him the greatest crop from the man hours of labor at his command.

Which Type Colony for Outyards?

That then brings up the question as to which type of colony is better suited to outyard operation. Is it the double-strength skyscraper or is it the normal strength normal height colony? It is doubtful if 50 two-queen colonies can be operated as quickly, easily, and efficiently as 100 single-queen colonies. In order to provide them with the same storage area per 1000 bees they would have to be either twice as tall or visited oftener. The average beekeeper cannot satisfactorily visit more than one yard per day during the flow and as he has 7 to 10 yards, that will mean that the double-strength colonies must be twice as tall as the normal strength. And at this point one realizes that there is a limit to how high a man can reach to lift off a heavy super. Also, in sections of the country where wind storms occur, extra tall colonies are not advisable, as many of us know from experience. We frequently reach our height limit here on one-queen colonies. I think I would prefer to operate two normal colonies rather than one of these others. One beekeeper I talked with said he would prefer to work three normal colonies rather than one two-queen colony.

If the storing power of the two types of colonies reverses as the flow changes from light to heavy, why not follow this reversal with manipulations designed to put the colonies in maximum storing condition for both the light and the heavy flow? Why not put the colonies at above normal strength during the light spring flow by the addition of queenless packages in early spring and then, later, before the start of the main flow, divide them into two equal parts giving the queenless half a young laying queen? These two halves could be set close together and called one colony if we were anxious to obtain a high per colony yield. Then in the fall they could be united with the young queen on top.

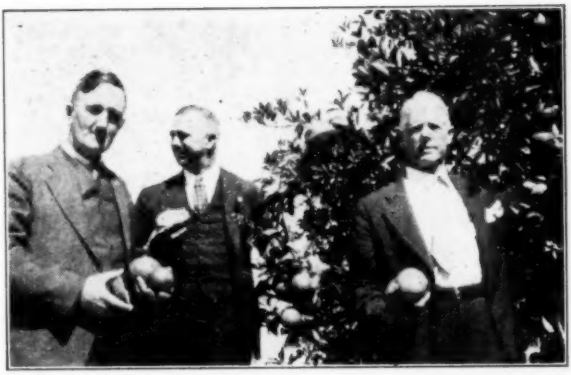
La Jara, Colorado.

[With well managed colonies occupying deep food chamber hives, it is possible and in fact, advisable, for swarm control in parts of Ohio, to divide populous colonies in early May. Divisions are placed on separate stands, giving the queenless divisions young laying queens, then both divisions will be ready for the main honey flow during late June, July and August. If these divisions were kept in two-queen hives, each on a single-hive stand, (which, with proper manipulation is possible) it might be necessary during a good season to use step ladders to manipulate colonies, also props to keep piles of supers from falling over. We must keep in mind this fact: The principles of beekeeping are the same the world over, but the application of these principles vary as to locality. Each beekeeper must make a study of his location and work out a suitable system of apiary management to meet his conditions. We suggest that beekeepers in various parts of the world give this two-queen system a good try-out on a few colonies at least.—Editor.]

Why Worry About Wintering?

Ira D. Bartlett

Colonies Are Gassed in the Fall and Hives Re-stocked With Southern Bees in the Spring



Right, Ira D. Bartlett, center, James E. Hilbert, left, Ralph Blackman. Picture taken in Florida in March, 1935.

While this new system may be contrary to generally accepted practices, unorthodox and somewhat revolutionary in its application, yet its basic principles are sound and can be applied with success in various locations, and is especially adapted to northern latitudes where the wintering of bees is difficult. The system is easily applied to one or one thousand colonies.

In describing our system I will begin with the caging of the queens which is done in our locality about July 10. Caging queens is a rather difficult part of our system, but when we can get the queen breeders to mark the back of each queen's thorax with a little daub of white Duco-presto, we can find her in a jiffy. We cage her between two combs of her hive.

The cages used are very cheaply and easily made by folding a piece of window screening, cut 3¼"x6¼". This is folded around a wooden form the long way and pinned with a small nail, folding one end against the end of the form with the use of a small hammer. When the queen is placed therein, a pinch with the thumb closes the other end. By placing these cages between two combs, the queens will be fed until the close of the season, and may be saved or taken out at any time. I have never found a use for them except to give to neighbor beekeepers at times—but they are "good queens".

There are at least six reasons for caging queens safely in colonies:

(1) It is done at a time when subsequent eggs laid do not produce bees that are of any further use to the colonies as honey-gatherers.

(2) There is a saving of the honey, say, 50 pounds per colony, that would have been utilized to feed brood during the late summer and fall months.

(3) It relieves the nurse bees to do field work and results in more honey.

(4) It facilitates the storage of pollen as well as honey in the brood chambers. Both pollen and honey will be needed the following spring.

(5) It frees the brood nests of brood; making a favorable condition for gassing the colonies at the end of the honey flow.

(6) It keeps each colony queenright and thus maintains colony morale.

A queen excluder is placed under each brood chamber. It is thus unnecessary to cut queen cells, as no virgin queen can get through the excluder. It is not a honey excluder, an objection sometimes offered to its use when placed above the brood nest. Bees pass through it freely. Its position here also saves many swarms, as no queen can leave the hive. This particular feature should in itself prove very beneficial to busy farmer beekeepers, as the swarm not having a queen, will usually return to the hive.

Gassing Colonies

After the honey flow is over and the surplus honey is removed in September, bees are ready to be gassed. I use Cyanogas (calcium cyanide), in a large dust gun. The colonies may be killed by placing a tablespoonful of the powder in each entrance. This dust is very poisonous to man or beast as well as insects and must be used with extreme care. After the fumes of the gas are gone, the hives are picked up and stored in a building. Bottom-boards and queen-excluders are cleaned. The combs may be graded any time between then and the time for the arrival of the packages.

Spring Management

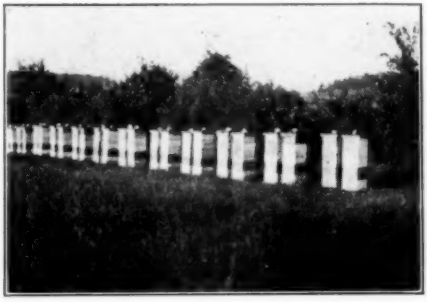
My method of procedure in the spring is, with slight variations to meet unexpected conditions, as follows: Combless packages of bees are purchased from the South, to be shipped, or trucked, at some stated date. It is best always to arrange for packages as early as possible. January is not too early to get the order placed. In this way you are certain to get shipping dates reserved, and especially is this advisable if you are a large purchaser.

An apiary located in a good milkweed location. Notice the rank growth of the milkweed.

For our location the three-pound, or a package a trifle larger is required, and the time to receive them is usually April 20 to 25. Express shipments are quite safe and usually come with slight losses. However, the bees are confined to the cages for several days, and if shipped during a warm spell of weather may arrive in a very heated condition. I am of the opinion that this burns up their vitality considerably.

Trucking 1000 Packages

During the past two years I have tried a few truck shipments. I brought up 1000 three-pound packages in two trips last spring, and with two drivers the bees were on the road less than forty hours. There are some advantages in this method. Feeder cans are unnecessary, and with due precaution the bees should arrive fresher than if shipped by express. There is, however, the heat in the South and the cold in the North to contend with, and unless one is prepared to fully control the ventilation some chances will be taken.



This is the way we now arrange all apiaries whenever possible—50 colonies in one row.

Upon arrival, whether morning or evening, I immediately place the bees in their hives. The main thing is to close each hive entrance to one bee space for the first day and then enlarge the entrance gradually as the season advances. This virtually stops all drifting. (If bees arrive chilled and weather is extremely cold, they should be placed in a building and thoroughly warmed before hiving. They may then be placed in hives even in below freezing temperatures. Also, if the weather is extremely hot, it is better to wait until later in the day when the temperature is cooler to install packages.)

Our bees are all placed in one large nursery yard where they are cared for until the middle of June. They are then placed in out-yards of fifty colonies each. Large areas of pollen producing plants surround the nursery yard. We usually get better results by leaving the bees here as long as possible. In this one large apiary one can feed and care for them better and cheaper. The queens are all checked and an examination for disease is made. These two examinations are

made when there are but nine frames in each hive, and it is surprising what a saving in time is made. After all examinations are made and colonies are all right and are requiring more room, the last frame, usually honey, is given, and the colonies moved to out-yards where they are given more room at once.

During the past three seasons we have been placing the first super, (the combs of which are select brood combs and contain as much honey as possible), directly under the colony. This is the next seasons' brood chamber, and the honey may be extracted from the one forming this seasons' brood chamber. At this time we usually, but not necessarily, place the queen excluding honey boards directly on the bottom boards.

I have found that this method of changing brood chambers has several good points and advantages. It gives one an opportunity of selecting and continually perfecting combs in the brood chamber, and also the colonies so treated are usually stronger later on because there is no slacking of brood-rearing, and no loss of heat as is the case when supers are placed on top at this early period. Subsequent supers are, of course, placed on top as required. We have also found that colonies will protect these combs fully as well below as above, in case of a robbing spell.

You may wonder just what is going to happen to the drones in the hive, since their exit is shut off by the use of the queen excluder in the bottom. Well, the fact is, they will die in time and clutter up the excluder, but they will never shut off the exit entirely. The bees will attend to that.

If combs used for brood-rearing are good worker combs, there will be no trouble, but if an excess of drone comb is permitted, you will have to open the hives or slide one super past the other so the drones may fly and then while they are out, close up the hives. Do this on a bright warm afternoon in late July or early August. They will cluster around in various places but in a few days all will be dead as the workers are rather hard-hearted and will not feed them.

Our plan of operation has been developed in real experience with six hundred or more packages each season. While there is room for further improvement, I believe we are on the right track. The beekeeper is master of the situation at all times, and I am more favorably impressed each season with this system.

East Jordan, Mich.

House apiary at St. Meinrad's Abbey, St. Meinrad, Ind. This mammoth abbey has its own carpenter shop, laundry, tailer shop, butcher shop, dairy—and bees. In charge of a capable Brother, the bees are all housed in a house apiary, so constructed that there is ample protection and yet plenty of light.

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The Prevailing Type of Bee Shipping Cage Used in the South

E. R. ROOT

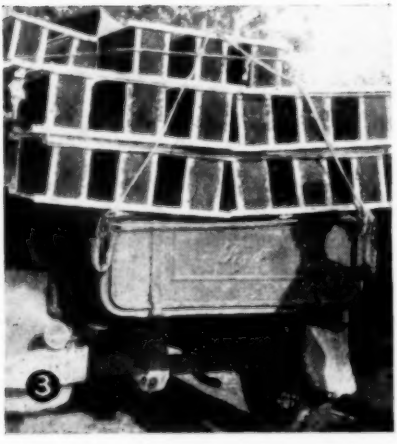

Fig. 1.—Type of funnel with queen excluder for sifting out queens after shaking combs free of their bees to go in the wire-cloth shipping cage. In putting up packages of bees it is quite customary to look over the combs carefully before shaking to see if there is any stray queen thereon. If she is not discovered, the comb is shaken into a funnel that has a queen excluder located about midway in the funnel. If the queen is not found and yet is on the comb, she will be caught on the excluder. If the package shipper were to take the time to find the queen in a populous colony he might have to spend fifteen or twenty minutes and then not find her. By this plan of procedure each comb is examined individually to see if the queen is on the comb before shaking. Even if she be missed, she will be caught on the excluder. This manner of shaking from several colonies without looking for the queen before any comb is shaken, saves an immense amount of time when time is most precious. There are several types of queen excluding funnels. This one shown is very simple in its design and is used by H. C. Short, an extensive bee shipper.

Fig. 2, 3 and 4 show the prevailing type of bee shipping cage used in the South. These lots of cages represent as many different apiaries and in fact represent the type of cage generally used. The claim is made that in this type of cage ventilation is secured from the ends as well as from the sides. There are other shippers who use a solid wooden end, but with a larger exposure of wire-cloth on the sides. The four-post type of cage, its advocates claim, is better because if one side is tight against a wall or a box, ventilation is secured from the three other sides. In cool weather or early spring it doesn't make much difference what type of cage is used, say some of the big shippers. It is during the hot sultry weather in express cars that the type of cage having wire-cloth ends as well as sides has the big advantage. In favor of the cage with the solid wood ends it may be said that they are stronger and at the same time leave more space for printed instructions on how to hive the package. The late D. D. Stover preferred the cage with solid ends. See page 161 of our last issue.

From the Field of Experience

FIRE TREATMENT SAFEST AND CHEAPEST

M. W. Harvey

I spent sixteen years in comb honey production in Colorado where there was no spring honey flow for building up colonies for the main flow starting June 15. Consequently, any colonies found with A. F. B. early in the spring and too weak to recover were burned. If found strong, the badly diseased combs were taken away and the colony closed down to just the combs they could cover with a division board, and the entrance was closed accordingly.

When the main flow was well started, these closed colonies were shaken on inch starters. Usually these were the best colonies in the yard for the second flow in August. And—I had a one hundred percent cure.

Many of you have no doubt had the sad experience of having A. F. B. introduced to your colonies by deliberate means. I well remember my experience when in the spring of 1913 I had a yard of 155 colonies maliciously set up with A. F. B. When the main flow started, my helper and I shook the 155 colonies in one day. We had two empty bodies to start with. We filled one with frames and one-inch starters and placed it on the stand of the one to be shaken. The other empty hive received the best of the brood which were stacked several high to hatch. The balance of the combs were burned.

We used all the hive bodies, bottom boards, and covers without disinfecting them. All that we did was to scrape them clean with a chisel. The honey was coming in so fast that it ran out the entrance in a flood. And again I had a one hundred per cent cure and thought I had my method down pat. However, I was soon to find out differently.

Shortly after this I located in Nevada and, of course, found different conditions. We had spring honey flows, and I put on supers to keep the bees from swarming. When the first A. F. B. made its appearance, I shook on full sheets of foundation and thought I would have them ready for the first main flow six weeks hence.

To my consternation, I found fifty percent or more showing disease in the second and third generation of brood. Again I shook them on full sheets in the main honey flow. Repeatedly, from one to five percent would show disease during the five years I was there. Nor was I alone in this experience, for I found all my fellow beemen having the same trouble. It never dawned on me where the failure was until I had been located in California for two or three years and found everyone there having exactly the same results.

This is the discovery I made. A cure is not certain if diseased bees are shaken on full sheets in an intermittent or very slow honey flow. I have observed that they will draw a few cells, empty the diseased honey into them, and then will guard and protect that honey until the next good honey day comes. Then, not needing those few cells, which may not number more than one to three, they store them up for future use which may be a month or a year from that time. Nevertheless, when they do get it, they are again convincingly set up with A. F. B.

Since making this discovery, I have shaken a few on full sheets when the honey was coming in steadily and fast enough to run out the entrance. This is done, however, only in good settled weather and a complete cure results. For the average beekeeper I would recommend a fast flow with a surety of at least three or four good days following the treatment and using one-inch starters.

I adopted the fire treatment several years before it became a law in the state of California where I am now located. I find, after all, that it is the cheapest and safest method. I can make up the loss in several ways and have better and stronger colonies.

Sebastopol, California.

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A WEAKNESS OF HOME-MADE HIVES

W. H. Hull

There is no doubt that a man with the requisite equipment, skill and inclination can make as good a hive as the hives turned out by bee supply

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factories. The question, is, will he? Undoubtedly, some do. But there are a great many more who don't. I have seen some amazing contraptions turned out by carpenters—professional workers in wood—and labelled bee hives. And the results obtained when they were put into use were even more amazing, if possible, than the contraptions themselves. The fact is that making a bee hive is more a cabinet maker's job than a carpenter's. Lacking any one of the three above-mentioned requisites, the result will be anything but satisfactory.

Inaccuracy is the great weakness of home-made hives. Among other things, it promotes robbing.

The picture shows what generally happens when a man tries to make his own hives. The home-made super is easily spotted. One thing that stand out is the absence of lock corners. But that would not be a fatal defect if the super was right in other ways. The fatal defect is indicated by the robber bees working through a crack caused by inaccurate cutting and dressing when the super was made. Note also the bees working at the crack at the top of this super, where the opening is not quite wide enough to admit them but attracts their attention, increasing their tendency to rob.

Vienna, Va.

NEW SYSTEM OF REQUEENING

C. M. Isaacson

Many and varied are the systems followed to safely requeen a colony. While the method I will give may not be as practical as some, it has the virtue of originality and so should be worthy of at least some attention.

It happened in late July. First, I should say that I rear a few queens for myself, and so had a number of young laying queens in nuclei at the time. These were grouped in a pasture where a few cattle grazed daily. As I manipulate colonies for swarm control, etc., I always replace poor or failing queens. It was such a one that I found late one afternoon. She was immediately removed and the colony marked to be requeened the next evening.

I had no occasion to go to the apiary until about four o'clock the next day. Armed with a queen cage I walked out, stopping at the nuclei to procure a young laying queen. While there, I noticed one small hive tipped over, evidently by the cattle during the day, and its half-pound or so of inmates gone. They had apparently decided that a home on its side was no home at all and left for better places. This swarming out was unusual and as I picked up the hive, I determined to place it in a better protected location afterwards.

The needed queen secured, I proceeded to the beeyard where I singled out the colony in need of the queen. Upon approaching it I noticed a great commotion and fighting among the bees at the back, where a ventilation opening had been made. I thought this rather queer as a good honeyflow was on and no robbing should have been present. On closer examination which showed a few hundred or so dead bees on the ground below, I quickly decided that it was not a case of robbing. No other colonies were involved, and it seemed simply a case of some bees trying hard to enter and the colony guards just as determined at keeping them out. The bees attempting to go in had very much the appearance of a swarm, and after a bit I remembered about the nucleus that had been knocked over. Knowing that it had had a good young laying queen, I decided not to introduce the queen I had brought along, but to wait and see if the colony would accept the nucleus' queen even though fighting the bees.

Two days later I found that this was the case. A nice appearing queen was laying rapidly. It was very unlikely that there could have been two queens when I removed the poor one, as the season of the year almost precluded this. Accordingly, I could only conclude that this was the nucleus queen and that I had discovered a new system of requeening. Briefly, it amounted to this:

(1) Have a good young laying queen in a nucleus.
(2) Remove the queen you desire to replace.
(3) Kick over the nucleus.
(4) Await results.

From the third step in the process I have named this revolutionary new method the "Kick-Over System of Requeening". If directions are followed faithfully, other conditions being equal, results are guaranteed.

Seriously, though, why did the colony accept the queen and reject the bees? They must have been giving the "distress call" to induce the small home-seeking swarm to choose them, but why did they refuse to allow the worker bees to enter? As I stated before, a good honey flow was in progress. Others probably can answer the question better so I will only take refuge in the old explanatory words—"Bee-cause".

Middle River, Minn.

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POLLEN SUBSTITUTES

N. J. Nicolaidis

Some years ago a Turkish army officer, a refugee in Greece, told me very seriously that in Asia Minor, his country, Turkish beekeepers used to feed their bees during the winter on boiled meat of chicken!

You may laugh as heartily as I did at the time. But I do not do so any longer after reading the article by Mr. Mykola Haydak in Gleanings for October, 1936, page 599, in which meat scrap is described as one of the best now known pollen substitutes. Perhaps this is another proof of the fact that the wisdom of ages should not be despised even if it sometimes appears quite absurd.

It should be stated that winters in Asia Minor are very severe, the ground remaining snowbound for six months and more. Evidently, the chicken meat remaining for a long time in a zero temperature, becomes very soft without rotting, and in that condition it is used up in spring by the bees, who find it, probably, a good pollen substitute at a time when there are no flowers in the fields.

I do not know whether this communication is of interest to you but I will be glad if it will add something to what is already known on the subject of pollen substitutes.

Athens, Greece.

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PROPER ARRANGEMENT OF HIVES IMPORTANT

J. F. Norgren

Is there anything more confusing than a visit to a bee yard where a number of colonies have been placed at random, facing a general direction, and all quite close together? Probably not!

If such a group presents a baffling situation to a beekeeper, what must be the effect on a virgin queen nervously returning from her mating flight? In that jumble of hives how is she to recognize her own front door? In the haste of her madcap elopement she probably forgot to fly around to the back of her hive to determine the number sometimes penciled there or check up on tell-tale hive tool marks that might be the only features that distinguish her hive from the rest. So there she is with nothing but instinct to guide her to the one friendly entrance among half a hundred enemy encampments. Perhaps her instinct is sufficient, but my experience indicates it is not, and to that end, also for sake of appearance, I arranged my colonies last year as follows:

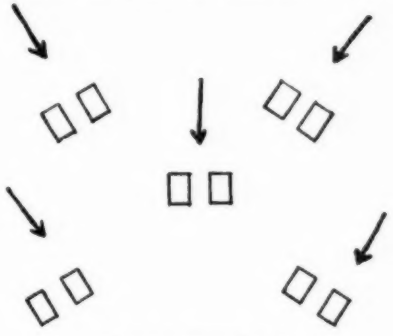

Illustration No. 1.

This arrangement was nice to work with as it divided the colonies into groups of 10, and each hive became a distinct individual in its group. I had but to make a note of the fact that,

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say, No. 2 in group 3 needed a super, and when I returned there was no hunting for No. 2 in 3. It was as plain as an after-dinner speaker's embarrassment.

The old queens were killed and ripe cells introduced in 15 of these colonies. Checking, after the required interval, I was elated to find 14 young laying queens. Only one had missed, and she had become lost, as her cell showed she had emerged normally.

A couple of days following my check-up I went with a beekeeper friend to check a yard of 50 colonies to which he had introduced cells about the same time I had. These colonies had been neatly placed in two straight rows, the hives spaced about three feet apart, and all facing due south. It was a very orderly set-up. Too orderly, we concluded after inspection.

The virgins had emerged properly from nearly all the cells we found—but where were they? The bees had started cells indicating the young queens were not at home. In the whole yard we found only about 20 percent of the colonies with laying queens. That is a discouraging situation, and one that will make the most benignant swear that beekeeping is the most unmanageable and difficult job in the world.

We decided the trouble was due to the exact similarity in position of all the hives. The line of flight to each was the same and there was not even a straggling weed before any entrance as a distinguishing mark. When one stops to consider, it seems no less than miraculous that even 20 percent of the virgins were able to find their own colonies again.

We made some deductions in an attempt to figure out the line of reasoning a bee must use to locate a particular hive in an apiary crowded with identical hives. It seems there can be but two ways: its position in relation to surrounding objects and the direction of approach. The best possible arrangement then should be a combination of the two in order that incoming bees may have no doubt as to their own entrance.

I wore out pencils making apiaries on paper, but the best I could do was an improvement on the line-up I used last season. The following illustrates the arrangement I expect to put in effect this spring.

This arrangement should not work a hardship on a bee's sense of position and direction. In fact it would be a bungling bee indeed that couldn't

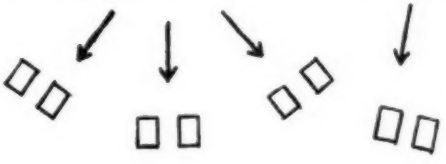

Illustration No. 2.

find her own alighting-board in such a definite plan. Any hive in the group can be worked on without getting in the line of flight of another hive, yet the formation can be fairly compact. One can designate the colonies by number reading from left to right without troubling to write the numbers on them. Enough space should be left between groups so flying virgins will not confuse one group with another. A truck can be driven between two groups and the honey removed from the 20 colonies without moving the truck—and here's hoping that makes a load.

Junius, South Dakota.

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COMMENTS ON CURRENT ITEMS

Bees and Fruit

We were much interested in Mr. Rasmussen's article on "No bees, no fruit". There was a time when our Canadian fruit growers were very doubtful as to the value of bees to the fruit grower; but they have changed their opinion. A few miles north of here a farmer set a very large orchard, every tree a "Spy". He did not know that this fine variety has an imperfect blossom, that is, the pistils or female elements of reproduction are present, but the stamens, the male elements, are not present. When the trees were several years past the first bearing stage and no fruit appeared he sold the orchard with the big field for $6,500. The next year several young trees of other varieties, probably replacements, threw their first load of blossoms and the result was astonishing. The purchaser sold just $6,500 worth of Northern Spy apples.

Handling Packages

The article by Clarence Tontz

"Handling Packages in Poor Seasons" was helpful, also. We have had considerable experience handling packages and have found dummy frames, the same size as the combs in the brood chamber, a great help in conserving the heat. Make them out of regular ⅞ lumber the width of your frame from top to bottom bar and nail a strip ⅜ thick on top edge extending over ends for "lugs". Replace with full sheets of foundation or full worker comb as the colony needs room.

Place hives some distance apart. If too close together there may be a lot of drifting and weakening of colonies. We have never found it necessary to use smoke when looking into nuclei.

Yellow Sweet Clover

This variety with us yields very light-colored honey and begins to yield about two weeks ahead of the white. In body there is about the same difference between white and yellow sweet clover as there is between the alsike and white Dutch.

Avoiding Stings

Mr. Grant D. Morse is right. Bee stings are not at all bad if we don't "think about it". And about wearing gloves, I think the most of the stings on hands can be prevented if the hairs on backs of the hands are singed off by passing them over a flame. But a good deal of the trouble comes from cross strains of bees. Some colonies can be handled with little or no smoke, and cross ones with little smoke, if you watch closely and give just a light puff when you see them making threats.

Share and Share Alike

Last year a man who had sowed a large acreage of clover near my bees said, "See here, Mr. D., I think I should have a share of your honey. Your bees will take a lot of honey from my clover and I really think you should share up". I replied, "Well, that looks reasonable. What share do you figure should come to you?" He did not want to say, so I suggested that I give him 6 per cent of all the honey my bees gathered from his clover. He thought that would be right. I replied, "Sure. Now I will do that if you will hand over 6 per cent of the money you get for your clover seed. There are no bees but mine near you, and if it were not for the good work of my bees for your benefit your clover seed would fail to materalize". There was quite a crowd listening and he didn't like it a bit when the boys gave him the laugh.

Mr. Beyleveld's plan of liquefying honey will work all right. The beauty of it is that a properly insulated double-walled hive will keep things cool. —J. F. Dunn, Ridgeway, Ontario.

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SPINSTER JANE SAYS—

Spring fever gets everyone and everything animate. Poets sing newer songs, so do the bees. No bees sing for me, this spring, nor did they last season, in spite of my high hopes. Isn't it queer? No matter what losses we may have sustained, no matter how gloomy the outlook, we just naturally cheer up with the coming of the bees, the birds, and the flowers.

Experience

To be a never-failing success with bees, a beekeeper must be something of a prophet, and though the gift of prophecy may fall, as did Elijah's cloak, upon some, it did not descend upon my humble shoulders. But experience means most of all to us, though she is a bit drastic in her methods. Discipline is her strong suit.

Spring came, a year ago, with balmy winds and sunny days, and we opened the wintering-cases, raked away dead bees clogging the entrances, and freed the bees. Three of the four colonies were alive but rather stupid, due to their long winter confinement. Not content with opening the cases, in a few days we took them completely away. Then the wind changed and blew strongly for days. It came over great ice-fields, I'm sure, for it chilled to the very marrow of our bones. And what it did to my bees! Pollen was plentiful on the pussywillows, and soon it fairly dripped from the alder bushes. The bees were busy bringing home heavy loads of it, but that wind kept on keeping on from the same quarter, and their ranks thinned and thinned to a mere handful.

Was I discouraged? I'll say I was, when I knew I could not replace them that season in time,—due to a slim purse, as usual.

Home hasn't seemed quite the same place without their cheery hum. My garden didn't do as well as formerly, especially my cucumbers which obstinately refused to "cuke". My neighbors complained of this, too, so said I to myself, "Jane, it's all your fault!"

What a responsibility! Yet humans

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are never free from it. We do owe a great deal to our fellow men. And what to do about it?

Throwing a pebble into the water and watching the tiny rings spread and grow, gave birth to that idea of sound on air waves, and lo! the radio! Steam raised the lid of a tea-kettle, and the steam-engine resulted. An apple fell to the ground, and we learned of the mighty attraction of the force of gravity. Fruit orchards yielded abundantly when bees worked upon the blossoms, establishing their worth, so bees were kept. The owner of Chazy Orchards proved this conclusively. In a small way, I found my few bees helped my neighbor as well as myself, so why not keep more bees and help more people? Yes, that is the answer to my problem, and in a few days my order will go out.

Will I be silly enough to make the same mistake twice? Now that I have confessed and got the matter off my conscience, I feel better, and I remember my New Year resolution.

Bees Take the Highway

Reading an article recently in the Reader's Digest, I came upon something that appealed to me as rather funny. It was entitled "Bucket-Brigade," and told of the wonderful system developed in several states of the U. S. A. for fighting fire; of the big fire trucks bought, and of other things they do. They are sometimes used to catch runaway swarms of bees!

When I read that, I went no further. I just sat back and wondered. Are your American bees taught to follow the beaten paths and highways? And even so, how are they caught? Is there some new bee-trap by which a swarm in flight may be captured? If there is, I'll bet it took some woman's ingenuity to invent it. Of course, the men would think of the truck for speed, and saving a foot-race in which they always come in second best. Following bees in this district with a truck is too ridiculous to think of, even. Brush, woodland, small mountains, seem to be the runaway's objective. I've never yet seen a swarm follow the road. They take naturally to the tall timber. Like one of the famous Hollywood stars, or one of your chronic hermit bachelors, they want to be alone.

Up in the Air

Now listen to my prophecy! Within a few years aeroplanes will be as common as motor cars. We'll all be "up in the air" a good share of our time. I do hope I'll be lucky enough with bees to afford one by the time they become reasonable in price, and please, won't someone invent a bee-trap for my special benefit then? Then I'll not lose any of my runaway swarms.

It sounds absurb, doesn't it? But when I saw my first "horseless carriage," as it was then called, I never dreamed I would one day see motors, thick as flies around garbage heaps. The old Dobbins have proven too slow for this speed-mad world, so why not let's all fly?

Down to Earth

To come back to reality, the men are afraid the clover and meadowlands will be all killed out. Some of them are still coated with ice, this 8th day of April. We haven't had a really warm, spring-like day yet. Still, I'm determined to get bees, just the same. There isn't an apiary within miles of us, and surely there will be nectar enough to feed my few prospective colonies, and furnish our table with the honey we love. When the neighbors get a sting or two and complain, may I be wise enough to hold my tongue and smile. A smile to a bee-stung man should act as a counter-irritant, as it were.—Spinster Jane.

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A Correction

HONEY CHOCOLATE FUDGE THAT'S DIFFERENT

(See original recipe page 218, April issue)

In a saucepan, place 2 cups of light brown sugar, ½ cup of granulated sugar, ½ cup of honey, 2 squares of ,unsweetened chocolate grated, ¼ cup strong coffee and ½ cup cream and a pinch of salt. Stir ingredients until well mixed. Then cover the pan and let mixture come to a good boil. Uncover and continue cooking, without stirring, until a few drops tested in cold water form a medium hard ball. Remove from the stove and add 1 tablespoonful of butter and 1 teaspoonful of vanilla. Place saucepan in a pan of cold water and let cool to lukewarm. Now beat until the mixture is very thick and creamy and looses its gloss. You will need a strong arm and plenty of patience, for this confection requires more beating than the ordinary run of fudge but it is very much worth the extra time and energy. When almost stiff enough, add about ½ cup of broken nut-meats (walnut, Brazil or pecans are recommended).

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At his home in Starkville, (Fort Plain) New York, Lewis J. Elwood passed away suddenly April 3, at the age of 54. Mr. Elwood was one of the prominent beekeepers of New York state.

Editorials

Starving Bees Reports from over the country indicate a shortage of stores due to unusual or erratic weather conditions, also failure to provide an adequate supply of stores last fall. Beekeepers should feed if necessary to prevent further losses.

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The Dandelion While efforts have been made to eradicate this so-called pestiferous plant, it continues to appear each year in all its glory. Years ago the late A. I. Root said of the dandelion: "This plant has been called only a pest, but it is one of God's greatest and most precious gifts in making our northern Ohio clay soil, 'a land flowing with milk and honey,' and both at the same time."

Dandelion is found practically all over the United States and Canada. It appears in the spring at a time when there would be practically a dearth of nectar and pollen were it not for this plant. In some regions of the North some surplus honey is stored from dandelion. The honey is somewhat amber in color and strong in flavor. As a rule, all of the dandelion honey is used up in brood-rearing. Its greatest contribution to the beekeeper is its pollen, which is so much needed in the spring for building up colonies in readiness for the main honey flow that follows. We are thankful for the dandelion.

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Next International Beekeepers' Meeting The best and biggest meeting of beekeepers ever held in the United States will take place in Washington, D. C., this coming fall. The dates have definitely been set for October 25, 26, and 27, with headquarters at the Washington Hotel.

These international meetings of beekeepers have been so popular and so well attended during the past few years that it is no longer an easy matter to find adequate hotel accommodations. In fact, in a city like Washington, accustomed as it is to visitors and conventions, there are only some six or seven hotels with facilities adequate to handle our customary crowd. The Washington Hotel, however, offers excellent facilities. The entire seventh floor has been turned over for our use. This includes the beautiful Rose Room, where the exhibits will be placed. At the opposite end of the hall will be the assembly room for all the large meetings. Off this connecting hallway is an outside balcony that will accommodate a hundred or more persons, from which an unobstructed view of the city is afforded overlooking the Treasury and the White House. Those who want a breath of fresh air can readily get it. It will be a good place also for two's and three's to hatch schemes and intrigues, yet everyone will be within call. On this floor is also a kitchen that will be utilized by the ladies of the American Honey Institute.

Owing to the unusually fine facilities for exhibits, much will be made of this feature. Commercial concerns who desire space should immediately get in touch with the secretary of the League, George J. Abrams, University of Maryland, College Park, Md., indicating the amount of space wanted and the type of exhibit that will be installed.

No other city in the United States offers the publicity that Washington can give. Every important newspaper in the country has its Washington correspondent permanently located in the Capital; also many foreign newspapers maintain representatives here. These with the embassies and legations of all foreign powers should give the beekeeping industry the finest opportunity it has ever had for nation-wide publicity.

The banquet hall in the Washington Hotel is known as the "Hall of Nations" and will accommodate 800 guests. The meeting should be a truly international one, so save your pennies because it will cost just a bit more to stay in Washington than in some other cities, but it will be worth it many times over. More details anon.

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Early Supersedure Fault of Breeder On page 160 of our March journal we quoted Thomas W. Burleson as saying that early supersedure of queens in packages was due more to the carelessness and ignorance of beekeepers receiving them than to the breeder. The reason given was because the packages were not well supplied with syrup on arrival.

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Now comes John G. Miller of Corpus Christi, Texas, one of the best queen breeders in the United States who told the Senior Editor that supersedure, when it takes place a month or more after the queen is successfully introduced is usually due to the ignorance or carelessness of the queen-breeder himself. Why? Because he used larvae too old for grafting. Mr. Miller's queens as we have seen from an inspection of nearly 500 of them, are large, prolific and long-lived. Mr. Miller insists that the grub for grafting should not be older than **three hours from the egg,**—not three days.

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Beware of Calcium Cyanide If you did not happen to read the article on "cyanide" on page 216 of our last issue, better hunt it up now before you forget it. It may mean the saving of a human life. A drug or chemical so deadly to bees is equally so to a bee inspector or beekeeper who ignorantly or carelessly handles it. Even in the open air it is fraught with danger.

The senior editor in Texas when out with the state bee inspectors learned how deadly the stuff is. A little of the dust on the end of a hive tool, thrown under the cover of a powerful colony will, in a few seconds kill every bee in the hive. We noted that if we were on the windward side of a hive being given cyanide, a slightly metalic odor could be detected, which if it had not been greatly diluted with fresh air might have been serious. Inspector Heard cautioned us to keep away from the windward side, not only of the hive being given a shot of cyanide but also away from that side of the pit in which the diseased material was burned.

When he opened a can of the deadly stuff he held his breath, pried up the cover and then dipped up about a teaspoonful of the cyanide powder on the end of his hive tool. Still holding his breath he shook the hive tool over the colony to be burned and then ran the tool into fresh earth. Last of all, after he had pushed down the cover of the cyanide can he washed his hands.

One should not forget that an open sore, a cut or a scratch is a source of extreme danger. If a little of the powder should get on the open wound it might mean instant death. In short, it is very wise to regard any of the cyanides, the most deadly of all poisons.

Redolent With Bee Glue The late Mr. W. Z. Hutchinson, editor of the Beekeeper's Review in its heyday, wrote that he liked best editorials and articles written on a bee hive cover, out in the bee yard, with a stub of a pencil daubed with bee glue. He said that the reader could detect in those writings the odor of bee stings which indicated practical experience fresh from the bees. Actual work in the apiary when put on paper tells its own story. It gives one new enthusiasm and new methods for making short cuts.

The discriminating reader has perhaps noticed that our junior editor who has charge of our experimental and honey producing yards at Medina writes as though he had just come from the apiary and that the bees had taught him a new trick of the trade which he was just bubbling over to tell. Yes, he gets his fingers daubed up with bee glue.

In the same way, the senior editor in Texas for the winter has been out among the Texas bees. He has just come from an inspection trip with the state bee inspector, Mr. C. E. Heard, under Dr. F. L. Thomas, state entomologist at State College. Mr. Heard and his assistant, Mr. Bergen, have some job when we remember that Texas measures 1500 miles one way and 1000 miles the other. Well, these two boys, or men, cover the state, all except the Pan-Handle perhaps, and they cover it well. If you could see them in action you would say that they are equal to the task. Talk about lightening operators! We actually saw them go over 438 colonies with the help of men to open and close the hives in about seven hours and drive a distance of over fifty miles. In addition, they burned while at the yards and before leaving, some eight colonies at three different burnings.

Did we "help"? No, it kept us busy photographing those boys while they inspected every inch of brood, the most of which was in two-story colonies.

Did the editor get stung? There was a big hole in his veil and he didn't know it until about a dozen bees let him know. Inspector Heard came to the rescue, with a cloud of smoke none too soon. Moral: Bee veils should have no holes except at the top and bottom. These holes should be stopped up with a man at one end and a hat at the other.

The Dust Problem and the Remedy

On page 96 for February issue we had something to say about the destructive work now going on as the result of poisonous dusts scattered by airplanes over fruit areas and particularly where cotton is being grown. We knew that the destruction of bees was appalling. The Senior Editor has been traveling through areas where cotton is grown extensively and from which is secured a large amount of cotton honey under normal conditions.

Most of the poison applied is for the destruction of the cotton leaf worm and not the boll weevil. The worms in the latter part of May or the early part of June may in a few hours practically destroy a whole field of cotton. Their ravages are not confined to one farm or ranch, but they may sweep over miles of territory.

The only effective remedy is poisonous spray or poisonous dust blown over the area. The cotton growers have been using airplanes for the distribution of this dust. When there is from one to a half dozen planes scattering arsenical poisonous dust over a large area, which dust is effective in killing the worms, one does not need to be told what happens to the bees, especially if the cotton plant is yielding honey profusely, as it may be doing when these poisons are applied.

Said one extensive beekeeper, "I had 600 colonies and a large number of nuclei in prime condition. Before I knew it the ground was literally covered with dead bees in the vicinity of my apiaries and in the space of 48 hours I had only twelve colonies and three nuclei."

"Why didn't you move your bees?" we asked. "I didn't know what was happening until seven airplanes were scattering the dust. Most of the destruction of my bees occurred within a few hours. It was impossible to move 600 colonies. Not only the bees but the unsealed brood, was poisoned."

This citation is only one among hundreds that we might give. Airplane dusting is one of the most serious menaces to commercial beekeeping that has ever occurred in the United States. Since the airplane has been used to distribute the dust, the destruction of bee life is ten-fold more serious.

Then, too, says H. B. Parks of the Apicultural Laboratory at San Antonio, Texas, the application of poison without regard to the presence of insects or the time of year is largely due to high powered salesmen who visit the cotton areas and tell the growers that they must be "prepared"; buy the poison dust now. They point out how so-and-so was prepared and saved his cotton and how the other fellow not prepared lost his. The same authority says the leaf worm which does the most damage goes in cycles. Two years perhaps out of ten it will destroy everything in the way of cotton and that for the rest of the time the damage will be negligible. Now, listen. He says if the poison dust is applied in accordance with the directions given by the state and federal entomologists little damage will be done to the beekeeping interests, and what is more, the cotton plants will be saved. To wait until the plant begins to yield nectar and, then apply the dust means terrific loss of bees as occurred last season.

What to do for protection against dust poison of bees in the cotton areas is a problem that must be solved and solved quickly. Obviously the cotton growers cannot well change their methods of insect control over night even if they wished to do so. It will therefore behoove beekeepers in those regions where losses have been suffered in the past to maintain close contact with county agents and others who are in position to advise them as much in advance as possible when poison will be applied on a large scale so that the bees can be moved from the danger zones. It is also quite possible that the airplane companies would co-operate if given a chance. Constant complaining from beekeepers will not enhance their work one bit. In the meanwhile, beekeepers should present their problems to both State and Federal officials who are concerned with making recommendations for pest control. These officials should be thoroughly informed as to the problems of the beekeepers and it will be essential that beekeepers take the initiative to see that this is done. Undoubtedly a careful study of the problem will reveal a time and method for applying these dusts in a way that will protect both industries. Armed with this information the beekeepers can then approach the cotton growers with the hope that

(Continued on page 322)

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From North, East, West and South

SOUTHERN CALIFORNIA, April 3.

Weather: Only once or twice since records have been kept has the rainfall exceeded that of the present winter. Most of it has fallen in such gentle showers that very little has run off. Reservoirs are full, or fast filling, and the ground is wet to a greater depth than has been the case in many years.

All growing things are coming on well. Cool days and nights have kept back the bloom but the weather is getting warmer and we can see quite an improvement during the past few days. It is just cool enough to make the bees consume a lot of stores. Lucky is the beekeeper who had an abundance of old honey for his bees. This feeding of sugar is at best only partly satisfactory. But empty hives will not make honey and if feeding will save your bees, well, feed with the resolve that next time you will leave plenty of stores to carry over.

Honey Crop: Practically all of the 1936 crop has left the hands of the producer. Prices have not advanced during the past sixty days, in fact, are a little lower if anything. There is no denying that the prospects for a honey crop are good but just how good we will tell you when we have it in cans next summer. Both the trees and the fruit came through the cold weather in a most remarkable manner. In our district very few trees lost their leaves and most of the growers saved 70 to 90 per cent of their fruit.

The orange trees are budding fast and a week of warm weather will see a lot of white blossoms. Watch for April 10th and see how far you will miss it by having your bees ready for the orange flow. It may be a week or ten days late this year.

Prices: At a meeting held recently the beekeepers present advised the holding of orange honey for a price of from 7 to 7½ cents. It has been my opinion for many years that the beekeepers should not contract their orange honey until the extent of the crop is known, then decide on a fair price. Orange honey should not sell in competition with other honeys, neither should it set the price because of its being one of our earliest honeys, if not the earliest. There is a certain demand for orange honey, but the supply is so limited that it need never be a competitor in the great honey markets of the country.

Beeswax is in good demand at advancing prices. The prospects for a honey crop will create an increasing demand for foundation which in turn stimulates the demand for wax, most of which will come from discarded combs that the beekeepers will cull out and melt for the wax.

Miscellaneous: One thing emphasized at a recent meeting of beekeepers was, "Pass a good idea along that others may also pass it along".

It has been called to our attention that the black sage that was growing among the dense growth of other bushes and shrubs has in many cases been unable to survive the drought of the past year.

Large bushes that have taken years to grow are now dry and dead. Where fire trails and other spaces have been cleared young sage bushes are springing up in abundance. In many cases the same conditions exist where fire has burned over the bee ranges. A few seasons like the present would give the black sage a great chance to come back into some of its old time prominence of thirty years ago.

When fire sweeps over the bee ranges white sage will sprout up from the roots while black sage must grow again from the seed.—L. L. Andrews, Corona, Calif.

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NORTHERN CALIFORNIA, April 2.

Weather: The first five days of March were typical summer days, then the rain came, and for the balance of the month we had plenty of moisture—so much that it interferred greatly with the bees in the orchards. In many places there is a lack of pollination and a shortage of fruit bloom honey. In other districts there was time between showers for the bees to do good work so that those bees are in fine condition.

Never before have we had such varied conditions. The condition of bees runs from a colony just able to drag along, to colonies of three stories full of bees from top to bottom. Fortunately the bees over our entire district can be said to be in good condition and our rainfall is above normal.

Honey Prospects: The 1936 crop of honey is well out of the hands of producers and the prospects of a honey crop in 1937 is really quite encouraging. Sage is rather backward but beekeepers of that district are very hopeful. Star Thistle is getting a fair start but this is our last crop and there are chances for and against a crop from that source. Both the retail and ton lots of honey prices have remained steady all winter and conditions have improved since the shipping strikes have been settled.

Beeswax: From the requests coming to the office of our State Association for beeswax we would conclude that higher prices will remain.

Miscellaneous: The date for National Honey Week, April 19-24, is already causing dealers to lay in a stock of honey. We are not in the habit of planning so far ahead for Honey Week. This is encouraging. Interest in better organization continues. This too, is encouraging. With proper organization beekeepers can accomplish most anything worth while.

We turned back to April in the 70's to see what Gleanings had to say then. It was the second volume, the second year of this great journal. We found such headings as "Honey Colum", "Heads of Grain", "Humbugs and Swindlers", and the "Depository of Blasted Hopes". There were others, but this is enough to think over. That covered the field pretty well at that time. Gleanings was just starting and there was a live man behind it. It had to succeed. It has had a long and useful life, each year growing better and better—a fine example for us. We can look back and see the obstacles we have overcome and forward to see the tasks still before us. This is what makes a beekeeper's life worth living. We have a great future before us. Beekeepers organize, form county associations, affiliate with the state associations and the state associations affiliate with the national and international. Then we will be able to overcome most of our obstacles.—Cary W. Hartman, Oakland, Calif.

TEXAS, April 1.

Weather: March has been quite discouraging to the bees but not so to the farmers. At the extreme end of a mild winter the last week of March found farm crops well advanced and bees at full swarming strength. The weather went into reverse and for an entire week north winds, freezing temperatures, and cold rain did much damage to the young crops. At the same time it very materially damaged the bees—to what extent is unknown. Due to the time of year and to the wonderful ability for recovery of both plants and bees in Texas, it is most probable that within a week this period of severe cold will have been forgotten and that everything will have recovered until March with its late freeze is also forgotten. The native honey plants are present in great numbers and are not damaged by the cold. They are only awaiting a little warm weather and a honey flow will be on. In many places the mesquites are coming into leaf with the flower tags appearing along with the new foliage.

Honey Market: Honey buyers report that only a few producers have honey still on hand. Much of this store is being held for feeding to colonies to keep them in full strength for package shipment. Wholesale buyers are running low on stores and are deferring purchase because of the nearness of the early honey harvest.

Miscellaneous: Beekeepers throughout Texas are making large plans for their annual meeting at Uvalde, July 16 and 17. Plans are now well along to make the program for this meeting of high class and from reports there will be a large attendance of beekeepers. The Women's Auxiliary which will be organized at that time promises to start off with a charter membership which is greater than the membership list of any of the now existing chapters. Every beekeeper in Texas should come and bring his lady folk. Dr. S. W. Bilsing, Chairman of the Program Committee of the Texas Beekeepers' Association, is working on the program and would welcome papers on beekeeping. Dr. Bilsing's address is A. & M. College, College Station, Texas.—H. B. Parks, San Antonio, Texas.

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WESTERN WASHINGTON, April 4.

Weather: The winter we have just gone through was considered quite severe by old settlers in the Puget Sound area, although the mercury did not touch zero at any time in and around Seattle. But, a few miles east, along the foothills of the Cascade range, sub-zero weather was common, staying at 8 and 10 below for days at a time. Near salt water in the lowlands, snow fell to a depth of about 12 inches; and here again the foothills scored, snow there being measured by feet instead of inches. March was a warm pleasant month with lots of sun and but little wind; a sharp contrast to the wild weather throughout that month a year ago. April thus far is still an improvement over March.

Crop Prospects: Despite long continued low temperatures through the winter months, colonies came through in good condition; and though losses have been reported by several beekeepers, in only a few instances were these losses at all heavy. Bees have been flying since February 20, and are now working on the usual early wild flowers. Cherry will soon be in blossom and will be followed closely by apple. The small fruits such as raspberry, blackberry, etc., are sources of early nectar in some sections where these fruits are grown extensively. The clovers are expected to do well this season, as there is an abundance of moisture in the ground. Beekeepers of Western Washington, however, regard this early honey flow as a means to build up strong colonies, which are later moved to the foothills for the fireweed flow, where the mountains literally "drip down honey".

Miscellaneous: Regrettable as it may seem, strained honey often comes under the ban of, "too sticky" or, "too messy", by many housewives. As one mother was heard to say: "The children are fond of it, but it causes so much extra work". Whenever honey is served in the same form as common syrup, this superior product is all too apt to be regarded as syrup, and in such form is often called syrup. But happily, a way has been found to cream, or solidify honey, that will, I believe, forever lift strained honey out of this "sticky syrup" class.—Ewing C. Pershall, Seattle, Washington.

NORTH DAKOTA, April 4.

Weather: Practically the whole state is blanketed with a recent snowfall, ranging in depth up to about fourteen inches. This will add some much-needed moisture to the soil and improve the general outlook for crops.

In general, the past winter has been one of unusually heavy snowfall for this region. All told, a total of more than three feet of snowfall has been recorded since the first of the year over much of the eastern portion of the state, while in the western section the snowfall was lighter. The heavy snows resulted in blocked highways for much of the winter.

Honey Market: Recent reports would indicate that most of the 1936 crop of honey, produced in this area, will be disposed of well in advance of the new crop. Mr. M. W. Cousineau, of Moorhead, Minnesota, local honey buyer, tells me that it is becoming increasingly difficult to assemble enough honey at any one point to make a carload for export shipment. Incidentally, he has moved nearly 50 carloads of honey from the Red River Valley since last fall. This represents a remarkable development in beekeeping when we consider that only twelve years ago about one carload of honey was the total year's export from this area.

Miscellaneous: As yet, only a few beekeepers have moved their cellar wintered colonies out-of-doors. Ordinarily, colonies are moved out at any time after March 20, but this season, being colder and more backward, has delayed moving by about 10 days to two weeks. From the few reports we have at hand it would appear that cellar wintered colonies have wintered through very satisfactorily.

Outdoor wintered colonies had their first opportunity for flight on March 5 at Fargo after a period of more than five months of confinement to their hives. It would appear that they wintered-over fairly well except for hives in wind-swept locations. This spring we have seen some excellent examples of the importance of windbreak protection for outdoor wintered colonies. Where natural shelter belts are inadequate or lacking, the need is being met to some extent by the common type of snow fence such as used along highways.

A few commercial beekeepers have indicated their intention of enlarging their apiaries but it is unlikely that the total increase in number of colonies in this area will be great this season. More interest than has been evident in several years is being manifest by beginners in beekeeping, most of whom plan to keep but a few colonies. No reports of observations on the condition of the clovers are at hand.

Plans are being made for the summer meeting of the North Dakota Beekeepers' Association, the place and date to be announced later. A large attendance is expected since the meeting will be held at some point in the state convenient to many beekeepers.—J. A. Munro, Fargo, N. D.

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MINNESOTA, April 2.

Weather: The winter of 1936-37 has been much milder in Minnesota than the preceding one. There were not such extreme low temperatures, nor such long periods of below zero weather. The snowfall has been heavier than normal and this should help the moisture situation in the spring, although much of this runs off and is carried away by the streams. The shortage of moisture was very serious last fall excepting in certain parts of southern Minnesota. Most reports on wintering have been favorable so far but it is still too early to be sure.

Honey Market: There has been a slight drop in price of honey in the Twin Cities since last fall, possibly due in part to some western off-grade honey being shipped in and put on the market at lower prices. There will apparently be enough honey in the state to last till this year's crop comes on but the carry-over should not be heavy.

Miscellaneous: The Minnesota Legislature is now in session and beekeepers are hoping for good support for the bee inspection work. The regulatory work, under the supervision of Professor A. G. Ruggles, State Entomologist, has made excellent progress but the funds available for this work have been entirely insufficient. —M. C. Tanquary, St. Paul, Minn.

WISCONSIN, March 26.

Weather: With the blizzard that came into Madison, March 24, the ardor of many beekeepers to set out their bees, was quickly cooled, and the bees are due for at least another week's rest with the temperature much below freezing.

From all reports, there appears to have been some dysentery, but the extent of the damage cannot be determined until the bees are unpacked or taken out of the cellar.

Crop Prospects: Although Wisconsin was covered with a sheet of ice for several months, apparently little or no harm was caused to alfalfa and clover, although we have only a few reports, and when the crops actually begin to grow, conditions may appear differently.

Honey Market: Inquiries at the University for honey in pails are strong, and honey seems to be moving very well. There seems to be little honey in the hands of the beekeepers in this State, so that the new crop is being looked forward to with considerable expectation.

We note in one of the recent bee journals a letter regarding the cleanliness of honey. This is an extremely important point, and I fear that beekeepers too frequently send honey to the market that contains fragments of wax, dead bees, and even mice. It is time to discuss this matter, because the honey buyer is quickly going to become disgusted with honey if he finds his shipments returned because the honey is unclean.

Miscellaneous: Wisconsin beekeepers are making a strong effort to have the appropriation for bee disease control increased from $6,400 to $31,000. The greatest concentrated effort ever to be made in Wisconsin for securing such an appropriation is now under way, and a long series of meetings was held during March by representatives of the State Department and the State Association. The writer's guess is that such a large appropriation cannot be secured at this time, but at least the effort should prove to the Legislature that the beekeepers are earnestly behind the effort, and some added funds may be given to the State Department for this work as a result of the drive.

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A series of district meetings is scheduled for Waukesha, Appleton, and Menomonie, Wisconsin, on April 6, 7, and 8, respectively, at which Mr. Rahmlow, Secretary of the Association, will be the leader. Miss Cranston will represent the American Honey Institute.

Beekeeper members of the Institute will be interested to know that the reading matter on the Institute seal has been changed to read "**Member** of American Honey Institute", instead of "**Contributor.**" We believe that this change will be appreciated by those members who have been making use of the seal.—H. F. Wilson, Madison, Wisconsin.

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PENNSYLVANIA, April 1.

Weather: We have just passed through a very mild winter which has left the bees in excellent shape. This favorable condition of the bees is more outstanding because of the extremely heavy losses of last winter. About the only losses are those brought about through starvation. Brood-rearing began in December. In fact, areas of sealed brood were considerably larger in January than they are today. This is probably due to the diminishing food supplies and the cold weather of the past few weeks.

This appears to be one of those seasons when it is advisable to feed the colonies that are weak or of medium strength in order to stimulate brood rearing.

Honey Plants: Clover is in fair condition. However, there are a number of reports that indicate some fields have suffered from continued freezing and thawing. Wild flowers appear to be in very good condition so that many beekeepers are looking forward to an early honey flow and are trying to get their bees ready in time to take advantage of an early flow from locust, tulip poplar, raspberry, Mountain honey-suckle, etc.

Honey Market: The honey markets have been very good and continue to be above average for this time of the year. Unusually large quantities of honey are being used by the bakers. This type of trade will often use medium or dark honey which is normally somewhat more difficult to dispose of. The few remaining batches of extracted honey are disappearing rather rapidly. The supply of light comb honey has been exhausted for some time. Retail prices for comb honey are lower than the market conditions indicate they should be. Low prices have the advantage of stimulating consumption and this may be the reason for the limited supplies now available.

Miscellaneous: Honey is being tried in an experimental way in several types of food. It is hoped that the final results of these experiments are favorable since this is the kind of markets needed by our beekeepers.—Edwin J. Anderson, State College, Pa.

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GEORGIA, April 5.

Weather: Other parts of the state report that weather conditions the latter part of December and all of January were the warmest and most ideal for bee work ever known in the state. Much of the time it was too warm to be comfortable in your shirt sleeves. All kinds of early vegetation came out, some in buds and others in leaves. There was plenty of pollen and nectar and the bees were just as active as if in May. February showed a very great difference in weather conditions. There was much rain and when there was no rain we had cold frosty mornings, but the unusual thing, the frost and light freeze did not have a killing effect on vegetation. In the Piedmont Plateau there was some damage done to the honey plants during their blooming and budding period. In the Blue Ridge section the early honey plants remained dormant for the most part.

The most unusual effect of the weather caused many good strong colonies of bees to perish that happened to have their stores in outside frames of the brood nest. Brood-rearing was at a high pitch and the bees clustered so close that they could not reach the stores in the outside frame.

Honey Crop: The earliest honey crop is almost a failure up-to-date. It was long-drawn-out on account of weather conditions, yet the bees had no chance to store. At the present time we are having an abundance of

rainfall and the flat woods about are covered in water and the prospects are good for the flows that are now on and will continue until the 20th of May.

Market: The market is almost bare and the demand is good.

Miscellaneous: Since we have appropriation for bee inspection and promotion there is a great amount of enthusiasm among the beekeepers. Many old beekeepers are going back into the business and, of course, lots of beginners are coming on the scene. Like some other states, Georgia has finally decided to advertise her honey through organized efforts as well as personal efforts. This is entirely new and beekeepers are giving it a great amount of attention since they awoke to the fact that the state had more foreign honey in it than we have ever before seen. We have been too busy selling our honey in other states and not supplying the demand for honey in our own state. This should have been our first and great job.—J. J. Wilder, Waycross, Ga.

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ONTARIO, April 6.

Weather: During the last five weeks we have had more cold weather than the two previous months gave us. Bees in this locality have not had a real good flight yet but all normal colonies appear to have flown enough for their needs.

Honey Market: .There is little change in honey markets and now that we are sold out completely, hardly a day passes when we do not have calls for honey. No doubt it would be good business to see that we are never sold out entirely, but it is only natural to sell when the offer meets our approval.

Miscellaneous: Wherever stores were good bees appear to have wintered well. However, two of our apiaries show the effects of honeydew that was stored last September. Many of the colonies are weakened and the combs show much granulated stores and signs of dysentery. At one yard thus affected, our loss was the heaviest in weak colonies and some were dead, while only a mile and a half distant another apiary wintered 100%. I have had but very few reports so far and cannot make an estimate of winter losses. Fall wheat appears to be green so I presume any clover present last fall will be all right. Locally as we have repeatedly stated, owing to great drouth of last summer and early fall, we will have but little clover this year aside from the alfalfa.

By the time this is in print the package business will be at its height for this year. No doubt the queen part of this business is the most important and if good queens could be assured always, the main objection to buying packages would be removed. As to heavy feeding of packages prior to and after introduction to hives preventing supersedure of queens, our experience has proven to us that there is nothing to it. I would not discourage having abundant stores but that factor will not make a poorly reared queen a good one. Last spring we had 50 packages sent to Hamilton, and a friend took them to his home, then telephoned us. Next morning the boys drove 80 miles and placed these bees in hives with no previous feeding at all, each package being placed on four dry combs and given a five-pound pail of syrup. Three days after I drove there and removed empty packages and again gave each a five-pound pail of syrup. That was all the attention they received except to give them full sheets of foundation as they were required. This lot of packages gave us the smallest percentage of failing queens we have ever had and nearly every colony was ready for the honey flow. These queens happened to be reared under favorable conditions and they were not superseded, simply because they were normal and did not need to be superseded.

In looking over letters received from package shippers during the last five years I find the following from one of the best package shippers. This letter was dated in late March and reads as follows: "Since the middle of February we have had almost continued cold and rain and very few days that bees could fly. We have 300 ripe queen cells caught in this last freeze and fear we will lose most of them".

With no reflection on any package shipper I ask in all fairness, can good queens be expected under those conditions? My personal view is that until some plan is devised for carrying over queens reared the previous fall for use in early spring packages, the problem of failing queens will remain with us.—J. L. Byer, Markham, Ontario.

XUM

Disease Resistance in Honeybees

O. W. PARK, Research Associate Professor, Ames, Iowa.

(Continued from April)

Discussion

Whether resistance to American foulbrood is the result of better housekeeping, as is believed to be the case in strains resistant to European foulbrood, or depends upon physiological factors, or both, remains to be determined. Evidences are not lacking to show that resistant colonies clean out American foulbrood combs and rear healthy brood in cells previously contaminated by the disease even in its advanced stages (figs. 11 to 16). Clean-up measures of this kind surely must play an important part in reducing the amount of infectious material in the hive; but, judging from what we think we know about bacteria in general and **Bacillus larvae** in particular, it seems scarcely possible that such measures could enable a colony to clean up the disease and show no further trace of it in more than a year, as several have done during these tests. Personally, I cannot get away from the idea that physiological resistance probably plays some part in cases which clean up and stay clean. Furthermore, several "straws" have been observed pointing in that direction.

One such straw is the fact that, in a number of the resistant colonies, a considerable proportion of the brood affected by the disease did not die until it had reached the pupal stage. Some factor—probably physiological—enabled these individuals to withstand the infection longer than is the rule; for, by and large, the percentage of individuals that die in the pupal stage in non-resistant colonies, is very small—probably less than one per cent. Is it not then conceivable that some individuals in these same colonies may have resisted the infection with sufficient success to carry them on into the adult stage?

Which race is most resistant? We do not know, but highly resistant colonies have been found in all three of the better known races, Italian, Caucasian and Carniolan.

Will such desirable traits as gentleness, hardiness and high production be sacrificed in the development of a resistant strain? We have recognized such a possibility from the first, and are using every precaution we know in an effort to avoid such a result. Already the queen of one highly resistant colony has been eliminated because of the viciousness of her bees. As yet our resistant stock has not been put to any special test for either hardiness or production, but general observations fail to reveal any marked deficiency in these respects.

A few beekeepers have the erroneous idea that their troubles with American foulbrood are practically ended already. They seem to believe that resistant stock will be available immediately and that they will be able to rid their bee-yards of this scourge next season by introducing queens from resistant stock. We most sincerely wish their beliefs were justified, and that their expectations could be met, but they cannot. Moreover, there is no absolute certainty that such expectations ever will be met entirely.

Reduced to simplest terms, our findings tell us that there is such a thing as resistance to American foulbrood and that it can be inherited. These two fundamental facts, however, do not solve the disease situation, they only point out the way to a probable solution. As yet next to nothing is known about inheritance in the honeybee, and the probabilities are that many years will be required to find out how to improve and fix the character for resistance in combination with other desirable traits. Progress in breeding and in the study of inheritance is bound to be slow, because our methods for the control of mating continue to be inadequate to the needs of the case. Dozens, yes hundreds, of difficulties must be overcome before our goal can be reached. The real work of developing a strain of bees that will breed true for resistance has, therefore, only begun.

Realizing that numerous and difficult problems lie ahead, we have encouraged certain other agencies to co-operate with us to the end that a resistant strain of bees may become a reality in the shortest time possible. These agencies include the U. S. Bee Culture Laboratory and the Agricultural Experiment Stations of Texas, Wyoming and Wisconsin. The work of testing for resistance will be done by the Iowa and Wyoming Stations. The Texas Station is undertaking to rear the queens needed for further testing, and the Wisconsin Station will investigate the genetics of the honeybee. The U. S. Bee Culture Laboratory will work on the bacteriological phases of the problem and will act as a co-ordinating agency. The exist-

(Continued on page 321)

Heads of Grain from Different Fields

Position of Natural Combs

Mr. Allen Latham is right about the bees having no particular position of placing their combs in the little square boxes and box hives, but I have found that in trees they invariably place their combs north and south. I cut bee trees each season in Kentucky and have cut several in Indiana. I find the combs all run the same way. I have been felling bee trees for 20 years and I always fell them north and south so that the combs will fall on edge and not crush the bees.—I. V. Evans, Aberdeen, Ky.

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Honey Heavier than Syrup

We do not produce honey for market since the amount we produce is inadequate for ourselves the year round. We, therefore, put the honey into syrup cans and serve it three or four times a week and serve syrup on other days. The honey and syrup tin containers were mixed accidentally. When filling the table containers for syrup, honey was poured into partly empty syrup containers. In a short time the amber honey appeared on the bottom and the dark syrup came to the top. While visiting a beginner in beekeeping in Fort Smith in the spring of 1935 (June, 1935, Gleanings, page 356), I learned that a stranger sold honey containing syrup on the bottom. That must have been very good syrup to have stayed on the bottom or else the honey was poor quality to have stayed on top.—Bro. Stephen Babek, Subiaco, Ark.

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Japanese Buckwheat

The cover crop for acid soils most valuable to the beekeeper is buckwheat. In this section it may be planted so as to supply nectar during the natural dearth periods. It makes good green manure for plowing under, and scratch feed when the mature grain is cut for litter for poultry. Once germinated it thrives and blooms when other plants would dry up. It keeps out the witch grass and other weeds. All fallow places should be kept sowed with it. Maturing in an astonishingly short time it is beautiful and remarkably free from pests. There are several varieties of this plant. The honey from some varieties is dark brown with a coarse flavor which is disagreeable to many people. While a slight admixture of this with lighter honeys gives an agreeable tang, pure buckwheat honey from these plants tastes and smells very rank. Attention should be called to the variety called Japanese. This plant and its seed grow larger than other varieties, and its honey is dark gray. The flavor of this honey is, to many palates, the best in the world, and it improves the flavors of honeys with which it is blended.—Arthur M. Southwick, Waban, Mass.

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Who Said "Heathen Chinese"?

I believe the Chinese boast the oldest known civilization in the world. At any rate, they had advanced to a point where they started a calendar some 4573 years ago. In reading some items about China recently I was interested to read the following beauty secrets known to Chinese beauties while our ancestors were still fierce savages roaming northern Europe. "To clean the skin of pimples and insure a clear complexion apply to the face a paste made of crushed orange seeds mixed with honey". "To keep your hands soft and smooth use a hand lotion consisting of the crushed seeds of peaches and apricots mixed with honey".—Wendell T. Card, Sylvania, Pa.

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An Old Law Still Works

I am far enough away from Spinster Jane so that it may be safe to disagree with her. She says: "Bees deteriorate in quality when no new strain is added." Under normal conditions they do not. A wise provision, of an all-wise creator, safeguards against this. Left to themselves, it is a survival of the fittest to live and perform the functions for which they were created. In a climate similar to this in which I live, those bees which are inherently weak, those which gather too few stores, or those which swarm late, are weeded out and lost and in time, only the strongest and best fitted to live under these conditions remain. This question of inbreeding which we have to watch so carefully with animals and humans, seems to be taken care of in the case of the bees by that inexorable law, the survival of the fittest.—O. B. Griffin, Caribou, Maine.

XUM

WHO'S WHO IN APICULTURE

To supply a handy reference of the names and addresses of state and provincial apiary inspectors, secretaries of beekeepers' associations, extension workers in beekeeping and other information often needed by our readers, we have corrected our Who's Who in Apiculture, as of April 1, 1937.

State or Province	Beekeeping Taught in Agr. College	Bees on Combs Admitted	Net Wt. Law Ext.	Net Wt. Law Comb. *If wrapped.	Inspector State or Province	Secretary State Association
Alabama	Yes	No	Yes	No	Thomas Atchison, Mont.	J. M. Robinson, Auburn.
Alberta	No	No	Yes		S. O. Hillerud, Edmonton.	S. O. Hillerud, Edmonton.
Arizona			Yes	Yes		
Arkansas	No	Cert.	No	No	J. V. Ormond, Elba.	J. V. Ormond, Elba.
B. C.	No	No	Yes	Yes	A. W. Finlay, New Westm.	A. W. Finlay, Huntingdon.
Calif.	Yes	Cert.	Yes	Yes	H. M. Krebs, Sacramento.	C. W. Hartman, Oakland.
Colorado	Yes	Cert.	No	No		Hilma Carson, Denver.
Conn.	Yes	Cert.	Yes	Yes	W. E. Britton, N. Haven.	Charles J. Rost, Meriden.
Delaware	No		No	No		Paul L. Rice, Newark.
Florida	Yes	Cert.	Yes	Yes	R. E. Foster, Gainesville.	M. E. Darby, Zephryhills.
Georgia	No	Cert.	No	No	A. V. Dowling, Valdosta.	J. C. Perry, Jr., Woodbine.
Idaho	No	Cert.	No	No	W. T. Callender, Boise.	
Illinois	Yes	No	Yes	No	C. L. Duax, Chicago.	E. F. Peterson, Kewanee.
Indiana	Yes	Cert.	Yes	Yes	J. E. Starkey, Indianapolis.	J. E. Starkey, Indianapolis.
Iowa	Yes		Yes	Yes*	F. B. Paddock, Ames.	F. B. Paddock, Ames.
Kansas	Yes	Cert.	No	No	R. L. Parker, Manhattan.	H. W. Stewart, Highland.
Kentucky	Yes	Cert.	No	No	W. A. Price, Lexington.	W. A. Price, Lexington.
Louisiana	Yes	Permit	No	No	W. E. Anderson, Baton R.	E. C. Bessonet, Donaldsv.
Maine			Yes	Yes		
Manitoba	Yes	No	Yes	Yes	L. T. Floyd, Winnipeg.	L. T. Floyd, Winnipeg.
Maryland			Yes	Yes		
Mass.	Yes		Yes	Yes	John Van De Poele, Boston.	George Meigs, Hathorne.
Michigan	Yes	No	Yes	Yes	V. E. Mock, Lansing.	R. H. Kelty, East Lansing.
Minn.	Yes		Yes	Yes	A. G. Ruggles, St. Paul.	B. L. Morehouse, Montevi.
Miss.	Yes	Cert.	No	No	Clay Lyle, State College.	Clay Lyle, State College.
Missouri	Yes		Yes	No	J. Carl Dawson, Jeff. City.	
Montana			Yes	Yes*		
Nebraska	Yes	Cert.	Yes	Yes	L. M. Gates, Lincoln.	C. A. McGuire, Lincoln.
Nevada	No	No	Yes	Yes	Geo. G. Schweis, Reno.	
N. B.	Yes	No	Yes		J. W. Ricketson, Frederic.	J. W. Ricketson, Frederic.
N. H.	Yes	Permit	Yes	Yes	Geo. C. Barton, Meriden.	Elwen Meades, Rochester.
N. J.	No	Cert.	Yes	Yes	P. L. Holcombe, Lambertv.	E. G. Carr, Pennington.
N. M.	No		No			
N. Y.	Yes	Cert.	Yes	No	A. C. Gould, Albany.	E. T. Cary, Syracuse.
N. C.			Yes			
N. D.	Yes	Permit	Yes	Yes	J. A. Munro, Fargo	J. A. Munro, Fargo.
Nova Scotia	Yes	No	Yes	No	H. G. Payne, Truro.	Evan Craig, Kentville.
Ohio	Yes	Cert.	Yes	Yes	Chas. A. Reese, Columbus.	W. E. Dunham, Columbus.
Okla.	Yes		Yes	No	L. J. Austin, Norman.	H. Horn, Jr., Okla. City.
Ontario	Yes	No	Yes	Yes	E. J. Dyce, Guelph.	E. J. Dyce, Guelph.
Oregon	Yes	Cert.	Yes	Yes	F. McKennon, Portland.	H. A. Scullen, Corvallis.
Penn.	No	Cert.	Yes	Yes	H. B. Kirk, Harrisburg.	A. T. Kiel, Mars.
Quebec	Yes	No	Yes	No	Henri-J. Plourde, Quebec.	G. Prud'homme, Chateaug.
R. I.	No	Cert.	Yes	Yes	A. E. Stene, Kingston.	Otis Wyatt, Lakewood.
Sask.	No	No	Yes	Yes	R. M. Pugh, Regina.	Mrs. D. Pugh, Ft. Qu'Appe.
S. C.	Yes	Cert.	Yes	Yes	J. A. Berly, Clemson.	
S. D.	Yes	Cert.	Yes	Yes	James L. Low, Pierre.	
Tenn.	Yes	Cert.	Yes	Yes	Julian Allison, Nashville.	G. M. Bentley, Knoxville.
Texas	Yes	Cert.	Yes	Yes	F. L. Thomas, San Antonio.	H. B. Parks, San Antonio.
Utah	No	Cert.	Yes	Yes	W. H. Hendricks, Salt L.	L. H. Walling, Cedar City.
Vt.	No		Yes	Yes	Charles Mraz, Middlebury.	Charles Mraz, Middlebury.
Va.			Yes	Yes	H. W. Weatherford, V. H.	W. A. Caldwell, Galts Mill
Wash.	Yes	Cert.	Yes	Yes	M. F. Mommsen, Tacoma.	M. F. Mommsen, Tacoma.
W. Va.	No	Cert.	Yes	Yes		
Wisc.	Yes	Permit	Yes	Yes	E. L. Chambers, Madison.	H. J. Rahmlow, Madison.
Wyo.	No	Cert.	Yes	Yes	C. L. Corkins, Powell.	

United States—Investigation and Demonstration in Beekeeping, James I. Hambleton, Bureau of Entomology and Plant Quarantine, Beltsville, Md.; Southern States Field Laboratory, W. W. Whitcomb, Baton Rouge, La., Pacific Coast Laboratory, Frank E. Todd and Geo. H. Vansell, Davis, Calif.; Inter-Mountain Laboratory, A. P. Sturtevant, Laramie, Wyoming.

Dominion of Canada—Investigation and Demonstration in Bee Culture, C. P. Gooderham, Dominion Apiarist, Experiment Farm, Ottawa, Canada.

American Honey Producers' League—President, Chas. A. Reese, Columbus, Ohio.

Southern Beekeeping States Federation—President, E. S. Prevost, Clemson, S. C.

American Honey Institute—President, R. H. Kelty, East Lansing, Mich.

National Ladies' Auxiliary—Mrs. Ethel Krebs, Chairman, Sacramento, Calif.

Texas Apicultural Research Laboratory—H. B. Parks, Rt. No. 1, San Antonio, Texas.

Extension Specialists in Beekeeping—Alabama, W. A. Ruffin, Auburn; Alberta, S. O. Hillerud, Edmonton; California, J. E. Eckert, Davis; Connecticut, L. B. Crandall, Storrs; Delaware,

(Continued on opposite page)

Just News

The Southern States Bee Culture Field Laboratory, of the Bureau of Entomology and Plant Quarantine, of the United States Department of Agriculture, operated in co-operation with the University of Louisiana Agricultural Experiment Station and with other experiment stations in the South, has undertaken studies on the inheritance in the honeybee. This work, under the supervision of Dr. Warren Whitcomb, Jr., will be handled by Dr. Otto Mackensen, who is well qualified to conduct such studies, having been trained in the famous genetic laboratories of the University of Texas. To carry on this work to the best advantage a large number of strains of bees having physical abnormalities is highly desirable. Many abnormalities, as beekeepers have observed, occur in nature, such as the abnormal drone eye colors, one-eyed bees, etc. It is desired therefore to obtain queens heading colonies in which abnormal workers or drones of any type appear. Beekeepers can facilitate these studies greatly by sending information as to the ownership, location, and history of such colonies, or better still, by sending the queens themselves along with this information to the U. S. Southern States Bee Culture Field Laboratory, University Station, Baton Rouge, La.

Vester E. Mock, the newly appointed bee inspector for Michigan was graduated from Michigan State College in 1926 and taught in Michigan High schools for five years. For the past five years he operated a 260 acre farm in Jackson County. While teaching and farming Mr. Mock kept from 30 to 50 colonies of bees and has been in close touch with the beekeeping industry. We wish Mr. Mock success in his new work. Also we commend Don P. Barrett for his splendid service as State Bee Inspector during the past few years.

The Annual Meeting of the Bronx Beekeepers' Association will be held at the home of Harry Newman, 3016 Bronx Park East, Bronx, N. Y., on Sunday afternoon, May 9, at 2.30.

The Dubuque County Beekeepers' Association of Iowa has re-organized recently, with Fabian Beckett, Pres., G. H. Ihmert, Vice Pres., Geo. Spoerl, 2nd Vice-Pres., Wm. Vallenweider, Treas., and G. J. Dieterich, Sec. The county will have thorough bee inspection in the future.

The Ladies' National Auxiliary, sponsored by the American Honey Institute, was organized Nov. 23, 1936, at San Antonio, Texas, at which time 29 women from 17 states and Canada joined. These women are teaching people to enjoy the use of honey in the home. The organization now has over 65 members representing 19 states and Canada. Mrs. Ethel Krebs, Sacramento, Calif., is chairman and Mrs. Florence M. Bennett, Birkenfeld, Oregon, Sec.-Treas. The dues are 25c a year.

Paul L. Rice, Newark; Florida, R. E. Foster, Gainesville; Iowa, F. B. Paddock, Ames; Kentucky, W. A. Price, Lexington; Louisiana, E. C. Davis, Luling; Manitoba, L. T. Floyd, Winnipeg; Maryland, George J. Abrams, College Park; Massachusetts, F. R. Shaw, Amherst; Michigan, R. H. Kelty, E. Lansing; Nebraska, O. S. Bare, Lincoln; New Brunswick, Ersol Moore, Prince William; New Hampshire, J. R. Hepler, Durham; New York, Geo. H. Rea, Ithaca; North Carolina, C. L. Sams, Raleigh; North Dakota, F. Gray Butcher, Fargo; Nova Scotia, H. G. Payne, Truro; Ohio, W. E. Dunham, Columbus; Ontario, E. J. Dyce, W. G. leMaistre, E. C. Martin, Guelph; Oregon, H. A. Scullen, Corvallis; Pennsylvania, E. J. Anderson, State College; Saskatchewan, R. M. Pugh, Regina; South Carolina, E. S. Prevost, Clemson; Tennessee, Geo. Herrington, Knoxville; Texas, R. R. Reppert, College Station; Virginia, H. W. Weatherford, Vernon Hill; Wisconsin, H. F. Wilson and Carl Schaefer, Madison.

Where we did not hear from states we repeated last years' information.

XUM

Asked and Answered

Few Beekeepers Have Rheumatism

Question.—Have you ever heard of, or do you know any beekeepers who suffer from rheumatism? In looking over a group of beekeepers recently the thought struck me that none were bent over and I wondered if bee stings had kept their bodies free from rheumatism.—K. G. Rau, Ohio.

Answer.—It seems to be a fact that very few if any beekeepers are afflicted with rheumatism. Dr. Bodog F. Beck, 116 W. 48th St., New York City, has written a book "Bee Venom Therapy" in which he cites instances of people being cured by bee stings. Some of Dr. Beck's patients suffering from arthritis have been relieved, in fact, some who for years were unable to walk without crutches, have, after a number of treatments, regained the use of their limbs.

Sweet Clover in the Tropics

Question.—Does sweet clover grow normally in the tropics? I am interested in it mainly for bee pasture.—Alfredo de Zubiria S., South America.

Answer.—The references which we have are those of observations from some of our men who have been in the tropics gathering seed of various forage crop plants. According to their observations sweet clover when planted at the low altitudes is practically a failure. Only about six inches of growth are made, with but little reproduction, which would necessarily mean a very limited flowering of the plant. At the higher altitudes sweet clover makes an abnormal growth, the stems become twisted and misshapen and the amount of bloom is rather meager. The plants grow over a long period of time making about a third to a half as much growth as they do in the temperate region. A large amount of the seed aborts before it is fully developed. Above an altitude of 10,000 feet sweet clover makes a growth somewhat comparable in all respects to the growth that it makes in the temperate climates.—Answered by E. A. Hollowell, Senior Agronomist, Washington, D. C.

Supering During Early Honey Flow

Question.—When adding supers during the early or spring honey flow should I place queen excluders under the supers given?—J. L. Long, Indiana.

Answer.—If your colonies occupy single-story hives it is preferable to add an extracting super to each colony without the use of queen excluders. The supers will provide more comb space for brood and nectar and queens will likely use the combs in supers as well as the brood chamber, for brood-rearing. If, however, your colonies occupy two-story or food-chamber hives a queen excluder may be placed on each two-story hive, under the super added. This procedure tends to simplify management, in that queens are kept below the excluders and the labor of putting them below the excluders later on, when the main honey flow starts, is obviated.

Mating Queens from Upper Stories

Question.—In your May, 1935, issue there appeared an article concerning "Mating Queen from Upper Stories," by W. A. Rowland. A footnote by the editor stated that Mr. Demuth had been experimenting with putting brood and the queen in the third story and a queen cell in the lower chamber, permitting the queen to mate from the lower brood chamber also that Mr. Demuth was taken before his experiments were completed and that the editor was going to continue the experiments. I am very anxious to learn the outcome of those experiments and the exact method used for best results.—O. A. King, Va.

Answer.—The experiments on dividing colonies in the spring, or on forced supersedure, have not been continued to a satisfactory conclusion. Mr. Demuth did not have very good success in getting young queens mated from the top supers of three-story hives. He was in the process of reversing the method, that is, having laying queens in the third stories and giving queen cells to the queenless bottom brood chambers when he passed on. When this work is done in the spring, prior to the major honey flow, results may not be satisfactory because there are likely to be cold spells which prevent virgins from mating normally. Furthermore, cold spells may result in poorly fed larvae in queen cells. The first five days of larval development of queens are very important. It seems that the best time to rear queens is at the height of the season after settled warm weather comes. It may be possible some sea-

sons when there is a long warm spell of spring weather prior to the major honey flow, to rear good queens satisfactorily. Of course, the idea of dividing colonies in the spring is to get young queens reared by the beginning of the main honey flow, and to control swarming during the honey flow. We rather favor the idea of using another hive stand for either the queenright or queenless division, instead of using a third story. Our experience has been that this method gives a larger percentage of laying queens. The divisions are then entirely separated and this may have some advantages. Before we get through experimenting, we may find a method by which we can rear young queens, control swarming, and secure larger crops of honey by properly manipulating colonies in the spring.

Can Bees Pollinate Nut Trees?

Question.—Recently I purchased some of the back annual reports of the Northern Nut Growers' Association. In reading them I found where the question was raised concerning bees pollinating nut trees, and it was left unanswered, as no one seemed ever to have noticed bees doing so. On May 28, 1934, I made a visit north of here to the Kellogg-Michigan State College Experiment Farm at Augusta, upon the invitation of the late Prof. Nielson from the State College. He showed me a large black walnut tree. While we stood there we heard the loud humming of bees busily at work—and they were working on the catkins of the black walnut which were then in bloom. Was this just a rare instance or are there other reports of the same? If rare or unknown I will re-check this matter this spring and see if this tree alone is visited by the bees.—Gilbert Becker, Michigan.

Answer.—The collecting of pollen from walnut, hickory, or pecan by honeybees is a common occurrence, especially during springs when there is a dearth of pollen. The collection of pollen by the honeybee from these trees has little or nothing to do with pollination. The pistillate flowers (the ones producing the fruit) are borne at the tip of the branch, while the staminate catkins which produce pollen copiously are located some distance back on the old wood. These trees are wind pollinated. The pistillate flowers are covered with a sticky substance which causes the wind-borne pollen to adhere. Bees are not attracted to the pistillate flowers. Statements that bees collect pollen from walnut trees and that the trees are wind pollinated are to be found in "Honey Plants of North America" and other books dealing with pollination. Flows of substances from nut trees are not uncommon; however, these are of honeydew from aphids and of a vegetable secretion arising on the outside surface of galls which grow on the larvae and new branches. —Answered by Dr. H. B. Parks, Chief of Apicultural Laboratory, San Antonio, Texas.

Uniting Queenless Bees With Weak Colonies

Question.—What is the handiest and most satisfactory method of uniting a queenless package of bees with a very weak colony having a queen?—W. L. Clive, Michigan.

Answer.—We have tried various methods but there is one method we like best and which has proven satisfactory. After taking off the outer hive cover from the hive containing the weak colony, remove the wooden block covering the hole in the inner cover and after removing the cover and the syrup can from the bee shipping cage containing the queenless bees, invert the shipping cage over the hole in the inner cover. Place a piece of wood at least one-fourth inch thick under one end of the bee shipping cage to permit the few bees that may get outside of the cage to get into the hive. Place an empty deep super under the outer hive cover to make room for the bee cage. In a short time the bees will leave the bee shipping cage and go down through the hole in the inner cover to unite with the weak colony. It may be advisable to place the queen of the weak colony, in a cage with a little bee candy in the end so that the bees may release her in a few hours. This caging of the queen keeps her safe from queenless bees until they have a chance to get acquainted. However, we do not cage queens and seldom, if ever, find one killed. The queenless bees welcome a queen and start to find her immediately. It is remarkable how a few pounds of bees added to a weak colony will boost that colony ahead and make it a producer. It is a decided advantage to feed the queenless bees all of the sugar syrup they will take before uniting them with a weak colony. Bees filled with syrup are likely to be accepted readily by other bees.

XUM

Talks to Beginners

M. J. DEYELL

Some years ago while engaged in commercial beekeeping in northern Michigan in the wild raspberry region, I lived near a beekeeper who gauged his success in beekeeping by the number of swarms that issued from colonies in his apiary. The more swarms he had the better pleased he was. Most beekeepers now-a-days try to prevent swarming, because a colony that swarms is not likely to store as much honey as a colony that does not swarm.

May is a swarming month in some regions and especially in apiaries where beekeepers do not provide supers early enough to prevent congested conditions within hives. May is harvest time for honey in many localities of the South. Surplus honey is gathered from gallberry in the South Atlantic states, the tulip tree in parts of Maryland, Virginia, and Tennessee, the mountain sage in California, not to mention other sources. In such localities the problem is to have the bees store the maximum crop of surplus while the honey flow lasts by giving each colony plenty of comb space, or supers.

May the Building-up Period in the North

In the northern portion of the U. S. A. and Canada, May is the most important month preparatory to the main honey flow. It is during this month that most of the bees that are to gather the crop are reared. Three requirements, (1) **comb space**, (2) **food** and (3) **good queens** are very essential for developing populous colonies. It is usually necessary to give a super of extracting combs to each colony occupying a single-story hive, some time this month, usually during the fruit bloom and dandelion honey flow. Failure to provide this additional comb space may result in swarming.

This additional super not only makes room for incoming nectar but provides more comb space for brood-rearing. No queen excluder is put under the super given and the queen may go up into the combs to lay.

Management of Food Chamber Colonies

Colonies in double-story, or food chamber hives, sometimes become crowded during the fruit bloom flow. An extracting super should be placed on top of each food chamber, over a queen excluder. This usually relieves congestion in the brood chamber and makes room for early honey. As a rule, the small amount of surplus stored in each super is used up in brood-rearing before the clover honey flow comes. In some regions there is practically a dearth of nectar between fruit bloom and clover. If the weather is not suitable for bees to work during fruit bloom and dandelion, it may be necessary to feed bees to avoid starvation.

If Colonies Prepare to Swarm

Sometimes a colony may prepare to swarm even though comb space has been given. In preparation for swarming, the bees build queen cells. These are usually built along the lower edges of the combs and are easily recognized because they are different from other cells. Instead of being horizontal, as are worker and drone cells they are built in a vertical position with the opening at the lower end. They resemble peanut shells in appearance and size.

When queen cells are first started they resemble shallow cups and later on these will each contain an egg. The swarm usually issues at the time the first cell is capped which is about eight days after the egg is deposited in the cell.

What To Do if a Colony Swarms

If a swarm should come out of a hive the old or parent hive should be set on a new stand a few feet away, turning its entrance away from its former position. A new hive containing either frames with full sheets of foundation or drawn combs should be placed on the old stand. Frequently a swarm will cluster on the limb of a small tree. The limb may be cut off and the bees shaken in front of the hive intended for the swarm, or, a basket may be tied to the limb of the tree, then the swarm shaken into the basket and the basket allowed to hang by the handle until the bees have clustered in the basket.

It is an advantage to get a frame of brood from another hive to put in the hive

receiving the swarm. This causes the swarm to get established readily in the new home.

After two days the parent hive that was moved away should be given a turn to face the same direction as the new hive. Then, after seven days, the old hive may be moved to another location, at least

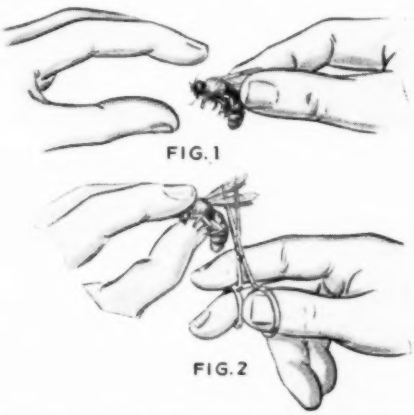
Enlarged photograph of a worker bee showing the rounded pellets of pollen on her rear legs.

15 feet away. This moving should be done carefully in the middle of the day when a large percentage of the old bees are in

Shaking a swarm into a basket.

the fields. These field bees, when they return, will easily find their way into the new hive and thus the field force of the swarm is increased.

In a short time the old hive that has been moved away to a new location will have a young queen and will be a good colony for the following year.



There is a right and wrong way to pick up a queen, a right and a wrong way to clip her. One should practice on drones first. Grasp the wings of the queen between the thumb and forefinger of the right hand. Be careful not to crush her as her abdomen is very easily injured. If the act is performed properly she will be held as in Fig. 1. Next transfer her to the left hand so that the thumb is under her and the forefinger is over. Held by the thorax, as in Fig. 2, clip the large wing on one side on top (not both wings). She can not fly and what is more, she can be picked up again if necessary.

Some beekeepers practice clipping queens' wings. It is much easier to hive swarms that issue if queens are clipped. The queen should be caught as she drops on the ground in front of the hive when a swarm comes out, and put in a cage. The caged queen should then be put in the entrance of the new hive on old stand. Often the swarm will return without clustering.

Beginners Starting with Packages

Those of you who have installed packages should continue to feed sugar syrup until the main honey flow starts, or as long as the bees will take syrup. This is especially necessary where frames with full sheets of comb foundation are being used. Some may have combs of honey, also drawn combs to put packages on to. If so, it should be unnecessary to feed so much syrup.

During a favorable spring when bees can work on fruit bloom and dandelion it may not be necessary to feed much syrup, but if cool weather prevails by all means feed syrup liberally. A little extra syrup fed may mean the difference between success and failure in securing a honey crop and it is a crop of honey that we all want.

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Buy and Sell Here

CLASSIFIED ADS

Only responsible advertisers and honest advertisements will be admitted to these columns. References required from new advertisers not known to us. Rate—7 cents per counted word each insertion. Each initial, each word in names and addresses, the shortest word such as "a" and the longest word possible for the advertiser to use, as well as any number (regardless of how many figures in it), count as one word. Copy should be in the 15th of month preceding.

HONEY FOR SALE

The reliability of honey sellers is not guaranteed, although strict references are required.

FINE quality clover in new 60's. H. B. Gable, Romulus, N. Y.

CHOICE CLOVER extracted honey. Fred Gilson, Wauseon, Ohio.

CHOICE CLOVER, extracted, 8c. Howard Grimble, Holcomb, N. Y.

400 cans Michigan white clover honey. W. S. Wiggins, Muir, Michigan.

CHOICE white clover honey in 60-lb. cans, J. F. Moore, Tiffin, Ohio.

FANCY clover honey, case or quantity. J. Stahlman, Grover Hill, Ohio.

FOR SALE—New comb and extracted honey. H. G. Quirin, Bellevue, Ohio.

MICHIGAN white clover honey. New sixties. Orval Dilley, Grand Ledge, Mich.

FOR SALE—Extracted and comb honey. M. W. Cousineau, Moorhead, Minn.

CLOVER honey in new 60's case or quantity. A. L. Coggshall, Ithaca, N. Y.

CHOICE white honey in new sixties, 7 cents. E. W. Redman, Ithaca, Michigan.

HONEY—Light and light amber extracted. F. W. Lesser, Fayetteville, N. Y.

CHOICE MICHIGAN clover honey in new 60's. David Running, Filion, Mich.

CHOICE Michigan clover honey in new 60's. Arthur Thayer & Sons, Freeland, Mich.

EXTRA white, heavy bodied, extracted, sixties, 8c. Irvin Van Devier, Medina, Ohio.

CHOICE white clover honey in new 60's. Sample, 15c. Noah Bordner, Holgate, Ohio.

ORANGE, palmetto, or amber honey in new sixties. Peter W. Sowinski, Fort Pierce, Fla.

FOR SALE—New crop honey in new sixty-pound cans. D. R. Townsend, Northstar, Mich.

FANCY white clover honey in 60-lb. new cans, 8c. Leslie A. Davis, Union City, Rt. 2, Ind.

MICHIGAN'S finest well ripened white honey in new 60's. Sample, 15c. Jay Cowing, Jenison, Mich.

FOR SALE—Fancy white clover honey in 60-lb. cans, 8c lb. Sample, 15c. Jos. H. Hoehn, Ottoville, Ohio.

BEST quality white extracted, in new sixties. Case or ton. Prices reasonable and satisfaction guaranteed. Sample 15c. Harry O. Kirk, Armstrong, Iowa.

HONEY FOR SALE—All kinds, any quantity. H. & S. Honey & Wax Co., Inc., 265-267 Greenwich St., New York, N. Y.

SELECT LOTS—Comb and extracted honey. Prices right. Write us about your needs. A. I. Root Co., 224 W. Huron St., Chicago, Ill.

FANCY white comb, $3.50; No. 1, $3.25; fancy mixed, $3.25; fancy buckwheat, $2.75; fine white clover extracted, 8c; buckwheat, 7½c. C. B. Howard, Geneva, N. Y.

HONEY PACKERS—Write us for prices on carload lots of California and western honeys. We stock all varieties. Hamilton & Company, 108 West Sixth St., Los Angeles, Calif.

SUPPLY your customers with good honey. You only pay freight from San Antonio. Truckers and car lot buyers should write. Uvalde County Apiaries, J. A. Simmons, Prop., Sabinal, Texas.

NEW YORK State comb and extracted honey, buckwheat and clover, any quantity, all size packages. Five-pound pails my specialty. Edward T. Cary, Midland Ave. and Tallman St., Syracuse, N. Y.

FOR SALE—Well ripened white sweet clover honey. Don't let your customers be without honey. The stock we furnish will please them. Write today for prices. Colorado Honey Producers' Association, Denver, Col.

We are holding a very good stock of our best Michigan clover honey, for our wholesale trade. Intending purchasers can be assured of their supply to last until the new crop is ready in July by asking us to set aside your requirements. No obligation on your part. E. D. TOWNSEND & SONS, Northstar, Michigan.

HONEY AND WAX WANTED

BEEKEEPERS TAKE NOTE—We will not guarantee any honey buyers' financial responsibility and advise all beekeepers to sell for cash only, or on C. O. D. terms except when the buyer has thoroughly established his credit with the sellers.

WANTED—White clover and amber extracted honey. Mail samples and price. Jonkman & Oosting, Evergreen Park, Ill.

HONEY, maple syrup, any amount. Mention amount, grade, price in first letter. Central Ohio Apiaries, Millersport, Ohio.

WANTED—Extracted honey in carlots or smaller quantities. Send sample and prices. Maxwell Brothers, Inc. Lynchburg, Va.

WANTED—Extracted honey in trade for chicks. Prefer 10-lb. pails. Barred Rocks, Reds, Wyandottes, White-Brown Leghorns. Also sexed chicks. Ames Hatchery, Deerfield, Wis.

WANTED—White, amber, and overheated honey. State price. C. Jankowski, Russell, Ill.

WANTED—Carlots of honey, state quantity, shipping point and price. Mail sample. Bryant & Cookinham, Inc., Los Angeles, Calif.

WANTED—White and Amber Extracted Honey, any quantity, also Beeswax. Write The Fred W. Muth Co., Pearl & Walnut Sts., Cincinnati, Ohio.

FOR SALE

FOR SALE—Cowan two-frame extractor. G. F. Tubbs, Darien Center, N. Y.

NEW 1-inch Lobee honey pump, has never been unpacked. Noah Bordner, Holgate, Ohio.

YOUR WAX worked into quality medium brood foundation for 15c per pound. Thin super, 22c. Fred Peterson, Alden, Iowa.

WE carry a full line of beekeepers' supplies. Honey taken in exchange. Prairie View Apiaries, 12213 12th St., Detroit, Michigan.

AUTOMATIC SWARM TRAP solves swarming problem. 1937 rotary model. Literature free. Vikla Mfg. Co., Lonsdale, Minnesota.

ELECTRICAL uncapping knives with transformer 110-120 volts, 60 cycles, $14.00. Paul Krebs, 8000 Fulton Ave., Detroit, Mich.

COMB FOUNDATION at money-saving prices. Plain, wired and thin section. Wax worked at lowest rates. E. S. Robinson, Mayville, N. Y.

PIERCE automatic queen grafting tool, $1.00. Aluminum electric uncapping knife, $5.50. Free illustrated descriptions. 840 Crosby, Altadena, California.

ATTRACTIVE prices on bee supplies and comb-foundation. Send for catalog. Saves you money. The Fred W. Muth Co., Pearl & Walnut Sts., Cincinnati, Ohio.

WAX worked into comb foundation, accepted for trade in supplies or bought. Write for our proposition and shipping tags. Walter T. Kelley, Paducah, Ky.

QUALITY bee supplies. Prompt shipment. Reasonable prices. We take honey and beeswax in trade for bee supplies. The Hubbard Apiaries, Onsted, Michigan.

BEST quality bee supplies, attractive prices, prompt shipment. Illustrated catalog upon request. We take beeswax in trade for bee supplies. The Colorado Honey Producers' Assoc., Denver, Colo.

45 ACRES maple and basswood, proved bee pasture and maple sugar bush, good buildings, 80 rods Lake front in Northern Minnesota. C. S. Chapman, Deer River, Minnesota.

BEST QUALITY soft white pine Hoffman frames, $30.00 per thousand. Complete line of bee supplies manufactured by us. All prices the lowest. Free catalog. The Walter Kelley Co., Paducah, Ky.

FOR SALE—Use ready wired frames and produce better brood combs resulting in bigger crops with less work. A trial will convince you. Literature free. Sample ten cents. A. E. Wolkow, Hartford, Wis.

COMPLETE equipment for 12 colonies. 20 full-depth supers with drawn combs. All hives painted and less than five years old. This is first class equipment, not mail order stuff. No disease. Frederick Bird, Fayette, Ohio.

FOR SALE—Fine quality queen-mailing cages; Root quality bee supplies; both comb and extracted honey. Orders filled promptly. Write us or drive over M53, fifty miles north of Detroit. Hamilton Bee Supply Co., Almont, Michigan.

Our patent wired foundation has ten vertical wires fastened to a horizontal stay which fastens to the top bar of standard frame. 10 sheets for $1.00 postpaid. Also plain foundation of the finest quality. Metal eyelets, 35c per 1000. F. Knorr, Del Mar, Calif.

EFFECTIVE AT ONCE—New prices on queen excluders. 4143, 8-fr. unbound zinc, 1, 45c; 10, $4.00; 4243, 10-fr. unbound zinc, 1, 48c; 10, $4.80. 4244, perforated zinc sheet, $3.80. The A. I. Root Co., Medina, O.

BEES AND QUEENS FOR SALE

ITALIAN QUEENS. W. G. Lauver, Middletown, Pa.

ITALIAN QUEENS. Satisfaction guaranteed. L. W. Lange, Richmond, Texas.

50 SWARMS bees. Guaranteed free from disease. Arthur Howland, Basom, N. Y.

THREE—BANDED Italian queens, satisfaction guaranteed. Lamar Bee Company, Box 1503, Baton Rouge, La.

EARLY UNTESTED three-band Italian queens, 75c each. Send your order. D. W. Howell, Shellman, Georgia.

LEATHER-COLORED Italian Bees and Queens. Marketing agreement prices. 15% dealers discount. Try us with an order. M. I. Tindal Bee Co., Greenville, Ala.

GOLDEN QUEENS—Excellent quality that produce hardy, gentle workers, 75c each. Personally reared. Safe arrival and satisfaction guaranteed. O. E. Brown, Asheboro, N. C. Route 1.

THREE-BANDED Italian bees and queens of fine quality. A trial order will convince you. Satisfaction guaranteed. Marketing Agreement prices. Alamance Bee Company, Geo. Elmo Curtis, Mgr., Graham, N. C.

EXTRA FINE Italian Queens 75c. Reliable, long experienced breeding insures quality. Send me your orders and be glad you did. 100% satisfaction guaranteed. G. H. Merrill Bee Co., Greenville, S. C.

THREE-BANDED Italian bees and queens. Guaranteed to be the best that can be produced. It costs too much to talk here, but if you'll buy your bees and queens from me they will speak for themselves. I guarantee to please you. Marketing agreement prices. D. P. Green, Deland, Fla.

EARLY PACKAGE BEES—Prompt shipment, beginning May 1. Two-pound package bees with queen, $2.45; three-pound, $3.15. Shipped by express collect, or if by parcel post, add postage. Choice hardy Italian queen, 75c. Safe arrival guaranteed. Birdie M. Hartle, Box 363, Reynoldsville, Penn.

HONEY in the Supers is what you want, and you cannot beat a package of fat, young bees headed by one of our hustling, home-raised queens. Cost no more than ordinary run. 2-lbs. with queen, $2.45; 3-lbs. with queen, $3.15. Quick service and satisfaction always. Caney Valley Apiaries, Box 1147, Bay City, Texas.

CAUCASIAN BEES and queens, extra gentle, prolific, hardy, and winter in the North like their own country. Long-tongued dependable workers. Prices: 2-pound package bees with queen, $2.45; 3-pound package with queen, $3.15. Queen's 75c each. 15% discount to dealers. P. B. Skinner Bee Co., Greenville, Ala.

Your money will be kept in a bank until your package bees are shipped, if you order your packages through me. Everything guaranteed. This is a certainty that you will receive prompt, and efficient service through my management. The thousands who have bought their package bees through me in the past decade will understand what this means. Packages are expressed direct to you from one of my leased yards in the South. E. D. Townsend, Northstar, Michigan.

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Buy your Bees and Queens from

Alabama Apiaries

WHY?

We give you full-weight packages of pure Italian bees, purely mated queens, live delivery and prompt service. We have the bees and queens to furnish what you want when you want it.

We have been in the queen-rearing business for over sixteen years and worked with Mell Pritchard, the world's best queen breeder, four years.

Give us a trial order. Our aim, "Once a customer, always a customer."

Health certificate accompanies each order. We support the American Honey Institute. Do you?

2-lb. pkg. with queen,.....$2.45
3-lb. " " " 3.15
Queens, postpaid, each..... .75

15% discount to dealers

Alabama Apiaries

MT. PLEASANT, ALABAMA

Smith's Bees

and Queens

All late orders for bees must be shipped promptly. We will have plenty of young bees and queens to ship from May 10 through June. We have all we can do before May 10. You will get the youngest bees possible and they will build up fast. Let your orders come on to us and we will get them out QUICKLY. Full-weight packages, selected young laying queens and prompt, satisfactory service will help you produce a bumper crop this summer.

	May	June
2-lb. pkg. with queen	$2.45	$1.95
3-lb. " " "	3.15	2.55
Selected young laying queens	.75	.50

15% discount to dealers

N. B. SMITH & CO.

CALHOUN, ALABAMA

ITALIAN QUEENS, package bees. Alonzo McKay, Route 1, Vicksburg, Mississippi.

DIEMER'S leather-colored Italian queens. Booking orders for June delivery. 50c each. J. F. Diemer Co., Liberty, Mo.

FANCY GOLDEN or three-band Italian queens, 75c each. Package bees and nuclei. Guilford Apiaries, Guilford College, N. C.

GOLDEN ITALIAN QUEENS. Untested, 75c; tested, $1.50; select tested, $2.00. Satisfaction guaranteed. Sam Hinshaw & Son, Randleman, N. C.

QUALITY QUEENS—3-banded Italians, prolific, gentle, great honey-gatherers, safe arrival. No disease known in our apiaries. Carolina Apiaries, Dalice E. Crawford, Mgr., Haw River, N. C.

GOLDEN Italian Queens, tested, $1.50; select tested, $2.00; ready now. Untested, 75c; select untested, $1.00. Ready about April 20th. Satisfaction guaranteed. Sam Hinshaw & Son, Randleman, N. C.

"SHE-SUITS-ME" QUEENS—None better. Only choice selected queens sent out. Line-bred 3-banded stock. Prices after May 20,—one laying queen $1, six for $5. Special price on large quantities. Send for circular. Allen Latham, Norwichtown, Conn.

CAUCASIAN QUEENS and package bees. Shipping begins April 1. 2-lb. package with queen, $2.45; 3-lb. package with queen, $3.15. Untested queens, 75c each. Safe arrival and satisfaction. Lewis & Tillery Bee Co., R. 4, Box 132, Greenville, Ala.

EXTRA YELLOW Italian Queens that produce bees a little more yellow than three-banded; more gentle and just as good workers. Untested, 75c each; tested, $1.50 each. Health certificate and satisfaction. Hazel V. Bonkemeyer, Randleman, Rt. 2, N. C.

GOLDEN Italian queens that produce workers, very gentle to handle, good honey gatherers, health certificate, satisfaction guaranteed. Select tested, $2.00; tested, $1.50. These are ready now, untested about May, 75c. D. T. Gaster, Rt. 2, Randleman, N. C.

THE NORMA ROY APIARY ITALIAN BEES—2 pounds bees, with queen, 1 frame brood and honey, $2.45; 3 pounds with queen, 1 frame brood, $3.15. Queen introduced if desired. Safe delivery and a healthy certificate. Norma E. Roy, Hessmer, Louisiana.

Still have a very good supply of bees to draw from for package bees for May and June delivery. Shipped by express direct to you from one of my leased bee yards in the South. Be sure and get my literature before you buy packages. E. D. Townsend, Northstar, Michigan.

LIGHT 3-BANDED ITALIAN QUEENS—We are one of the largest growers of queens in the United States, producing 100 queens or more daily. We ship only young, laying queens and guarantee them to be purely mated and satisfactory to you. You are the judge. Price 75c each. To dealers, 65c each. We need dealers in many localities. The Walter T. Kelley Co., Paducah, Ky.

SPECIAL OFFER on 300 one-story colonies of bees in modern ten-frame standard equipment at $3.50 each. Truck them yourself. We can make early shipments on two and three pound packages of bees with queens. Ship at any time you say—May and June. Trade agreement prices. Dealers discount 15%. Dealers wanted in all localities. Health certificate with all bees. Little River Apiaries. Box 83, Gause, Texas.

HELP WANTED

HELP WANTED—Can use one more helper in my large bee business. M. E. Ballard, Roxbury, N. Y.

WANTED—Young man as helper in apiaries. Room, board furnished. Give age, weight, wages, references in first letter. Jay Cowing, Jenison, Mich.

WANTED—Man to work in apiary. All-year work. State experience, age, wages expected in first letter with or without board. J. W. Reitz & Bros., Summerfield, Fla.

WANTED—Man as helper with bees. Steady employment to the right party. Prefer young single man. Experience unnecessary. The Hubbard Apiaries, Onsted, Michigan.

WANTED—Experienced bee man with clean habits for season's work. State experience, age, references and wages expected. Board and room furnished. John Kneser, Hales Corners, Wis.

MISCELLANEOUS

ANTI-TANGLE wiring outfits, $1.00. Robert Holsinger, Sanford, Michigan.

CHOICE white clover also alfalfa honey, new sixties. Frank Rasmussen, Greenville, Michigan.

WANTED TO BUY—Bees, with locations in central New York, address, P. O. Box, 127. Starkey, New York.

NEW CROP—White tupelo honey. Will be extracted by first of May. Barrels and 60-lb. cans, 7 and 8c per lb. Stevenson Apiary, Apalachicola, Fla.

WANTED—Small filter press and other equipment for processing and bottling honey. L. T. Colvin, Falmouth, Ky.

CONTRIBUTIONS WANTED—Bees, etc., to establish small apiary, at Home for Crippled Children. Write Packard Manor, Chautauqua, N. Y.

THE BEE WORLD—The leading bee journal in Great Britain, and the only international bee review in existence. Specializes in the world's news in both science and practice of apiculture. Specimen copy, post free, 12 cents stamps. Membership of the Club, including subscription to the paper, 10/6. The Apis Club, L. Illingworth, The Way's End, Foxton, Royston, Herts, England.

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NEWBERRY'S PRINT SHOP, Creston, Ohio

Pattison's Pure Italian Queens

The best that money can buy.
Young untested, each.....$ .75
Young tested, each..... 1.50
Young Breeder, each..... 5.00
No charge for clipping.
R. T. PATTISON & SON Albany, Ga.
The Home of Guaranteed Satisfaction.

WRITE PROGRESSIVE APIARIES
Read Adv. Page 312

BOOKED TO CAPACITY
on packages up to May 10th.
Let us reserve your shipping date on packages you will require May 15th or later.
Daughters of Imported Queens,
You will like them.
The Crowville Apiaries, Winnsboro, La.

Booking Orders Now
For Hollopeter's three-band Italian Queens.
We have never been able to supply the demand for early queens, and sometimes fell short of enough for later demands. With doubled capacity and your cooperation in anticipating your needs as far ahead as possible, SERVICE and SATISFACTION at all times is our aim.
Shipping season begins May 15th. Untested queens, till June 1st. 75c each: after June first, 60c; two or more, fifty cents each.
WHITE PINE BEE FARMS
Rockton, Pa.
(With Gleanings from 1911)

For Sale!
Pure Italian Queens and Bees

Nothing but the best. Bright yellow and three-band queens, $0.75 cents each.
1 lb. of bees with young queen, ...$1.75
2 lbs. of bees with young queen, ... 2.45
3 lbs. of bees with young queen, ... 3.15
You send for them—they go
GRAYDON BROS.
Route 2 Greenville, Ala.

WHEN YOU PAY FOR
Good Bees and Queens
Be sure you get them. Order Forehand's How many times have you been disappointed in stock and service? And just think for the same price you could have had Forehand's.
Early blooming plants enable us to rear queens from natural sources.
2-lb. pkg. bees with unt. queen. ..$2.45
3-lb. pkg. bees with unt. queen.... 3.15
Untested queens..... .75
N. Forehand, - DeLand, Fla.

PROGRESSIVE APIARIES

IMPORTERS EXPORTERS BREEDERS SHIPPERS

Progressive Quality Italian or Caucasian Bees or Queens

1000 colonies for packages—1000 nuclei for queen mating. We are the first to advocate and devise a pedigree for BREEDER QUEENS.

We believe in and BREED for that BETTER BEE. Write for literature.

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PROGRESSIVE APIARIES

J. A. SCHLOTTHAUER and A. L. MATHEWS

Shipping Office: Ceres, California. Home Office, Tehachapi, California.

Berry's Reliable Package Bees and Queens

THREE-BANDED ITALIAN BEES & QUEENS

43 Years a Beekeeper and Breeder 25 Years a Package Shipper

Safe arrival, full-weight packages and satisfaction in every way is guaranteed. Where queens are wanted with wings clipped there is no extra charge.

3000 Full Hives of Bees 4000 Strong Nuclei

Age, Ability and Experience Count

Marketing Agreement Prices Only

M. C. BERRY & CO., Box 684, Montgomery, Ala.

Things Worth Considering

Since 1923, we have been shipping package bees to all parts of the U. S. A. and Canada. During this time we have not had a single dissatisfied customer that we know of, but have acquired many friends.

We cannot supply your needs as early as some shippers, as we are in the northern part of this state, farther north than most all package shippers. Being closer to you, and situated on fast express lines, we are able to save you money on express charges, and get them to you in excellent shape. We are always ready to begin shipping April 10 to 15. Also have a good system of hard surfaced roads, and plenty of efficient help if you wish to truck them back. We breed the three-band Italians only.

Prices to June 1.

2 pound package with queen	**$2.45**
3 pound package with queen	**3.15**
Queens	**.75**

15% Discount to Dealers

SHAW & HOMAN, Shannon, Miss.

WHAT COUNTS In PACKAGE BEES

Good Queens

Young Bees

Light Crates

Prompt Shipment

Business Reliability

YOUR BUSINESS IS APPRECIATED

PRICES

To June 1st		After June 1st	
2-lb. pkg. with queen	$2.45	2-lb. pkg. with queen	$1.95
3-lb. pkg. with queen	3.15	3-lb. pkg. with queen	2.55
Mated Italian Queens	.75	Mated Italian Queens	.50

15% discount to dealers

The Stover Apiaries

Mayhew, Miss.

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1937
Package Bees
Shipped on Time

Our reputation of selling a better package of Italian Bees with a Fine Young Italian Queen and

SHIPPING ON TIME

assures your satisfaction.

Marketing Agreement Prices

15% Discount to Dealers.

CHARLES HILLOCK
Valdosta, Georgia

When You Get a Good Thing Remember Where You Got It

It is a little more trouble to build our shipping cages than it is some styles. It pays us and you, too. It pays you because the bees arrive in better shape. Not just alive, but full of pep. It pays us by assuring repeat orders. The cost to you is no more.

Our special introducing cage costs us more to build and also more to mail, than regular mailing cages—but the cost to you is the same. If requested, we send your queens in them. It pays you, because you have no loss in introducing. IT PAYS US IN CUSTOMER SATISFACTION.

Marketing Agreement Prices

SILVER RUN APIARIES
Route 1, Phenix City, Ala.

MILLERS CAUCASIANS

75¢

THREE RIVERS TEXAS

CAUCASIANS

Extra gentle, prolific, long tongue, little inclined to swarm, dependable workers—10% to 40% ahead of Italians. Foundation stock from the mountainous province of Terek, Caucasus. 10 years with them.

CARNIOLANS

Prolific at all times, very gentle, best of winterers, build beautifully white combs, most excellent workers. My Carniolan queens headed yards producing an average of 436 lbs. per colony over whole yard. 30 years with them. Untested queens, both races, each..... .75

Queens ready latter part of month. Both these dark races hardier than average Italians and build up more rapidly during the unfavorable weather of our eastern and northern states. Free Circular.

ALBERT G. HANN, Glen Gardner, N. J.

We Don't Make Excuses

We ship you first quality Italian Bees and Queens.
Marketing Agreement Prices
Discount to Dealers

Sullivan Apiaries
Gilbertown, Ala.

GET RUNNING'S BEES
And Get Honey—They Satisfy
PACKAGES AND QUEENS

The kind WE use in our extensive Michigan Apiaries, where WE produce honey by the carload.

ALL ITALIAN STOCK

Service guaranteed. Stock bred for honey-getting and gentleness. Apiaries accredited and certified by Alabama Department of Agriculture. Get our free circular. YOU can now get RUNNING'S bees and queens as cheap as others.

All bees and queens shipped from our Alabama Apiaries.
2-lb. pkg. and queen, $2.45; 3-lb. pkg. and queen, $3.15. Untested Italian Queens, $0.75. No discounts.

DAVID RUNNING APIARIES
Sumterville, Ala., or Filion, Mich

Package Bees and Queens!

Three-Band Italians

• • •

Young bees, full weight, Good Queens, when You Want them, by Express or Mail. Safe Arrival. Replacement or Refund on receipt of express bad order report.

Packages, including Queen, For March, April, and May,

2-lb. combless package, each	$2.45
3-lb. " " "	3.15
4-lb. " " "	3.85
5-lb. " " "	4.55
Queens, untested	.75
Queens, tested	1.50

Write for Prices on Comb Packages

D. C. Jackson, Funston, Ga.

Reliable Service, Reliable Package Bees and Queens

Three Band Italian Bees and Queens
Price List, Via Express Collect

2-lb. package bees with select untested queen.....$2.45 each
3-lb. package bees with select untested queen.....$3.15 each
Select Untested Queens.. .75 each
Select Tested Queens.... 1.50 each

Prices of package bees via mail quoted on request.

15% discount on the above prices will be allowed dealers on bees for re-sale.

Support the American Honey Institute.

Formerly Hayneville Apiary Co.

W. E. HARRELL
HAYNEVILLE, ALABAMA

Package Bees and Queens

By Pound, Ton or Car
Service—Satisfaction
Trade Agreement Prices. Write for particulars.

VICTOR APIARIES : : UVALDE, TEXAS

PURE ITALIAN QUEENS & BEES

Golden or three-band, full weight packages and young vigorous queens

2-lb. pkg. with queen, each.....$2.45
3-lb. pkg. with queen, each..... 3.15
Untested queens, each..... .75

They satisfy you when you get them

E. A. SIMMONS APIARIES
Powell Owen, Mgr. Greenville, Ala.

Treat Yourself to the Best With

NORMAN'S, pure 3-banded Italians. I am prepared to furnish you with the finest quality young Italian worker bees and the most select laying genuine Italian queens. Shipped in light-weight cages well ventilated. I guarantee safe arrival, full weight packages, prompt and efficient service. You will be more than satisfied. So order NOW. All orders shipped promptly by return mail.

Marketing Agreement Prices

2-lb. pkg. with unt. queen	$2.45
3-lb. pkg. with unt. queen	3.15
Unt. queens	.75
Tested queens	1.50

Health Certificate Furnished
15% Discount to Dealers

JOHN A. NORMAN
LaPine, Ala. Rt. 2, Box 38

PALMETTO QUALITY QUEENS

Better beekeepers know that Palmetto Queens are of the highest Quality.

Want some good dealers to sell Queens. Prices, 75c each. After June first, 50c each. 15% discount to dealers. Package Bees at Agreement prices. All orders filled promptly. Three-band Italians. No disease.

C. G. ELLISON & SONS, Belton, S. C.

Three-Band Italian Queens, Package Bees and Nuclei. Lower Austrian Queens

We give you honest quality at fair prices.

Untested Italian Queens	$ .75
Lower Austrian Queens	1.00
Two-pound package with queen	2.45
Three-pound package with queen	3.15

Send for circular. Discount to certified dealers only.

The Coffey Apiaries, Whitsett, Texas

STOP Reply Adv. Page 312
Progressive Apiaries

XUM

With---

Bakers, Grocers, Druggists

Home Demonstration Agents

Candy Manufacturers

by the American Honey Institute has created the demand for honey you are enjoying today.

Isn't the organization responsible for this increased demand entitled to your support?

SPECIAL PREMIUM OFFER FOR MAY ONLY

Each person sending a membership of $3.00 or more to the Institute during the month of May will receive one of the new No. 100 Jr. Dripcut Honey Dispensers. This dispenser is the most efficient and attractive device ever offered to honey users.

AMERICAN HONEY INSTITUTE
MADISON, WISCONSIN

Attention:—Miss Goodman

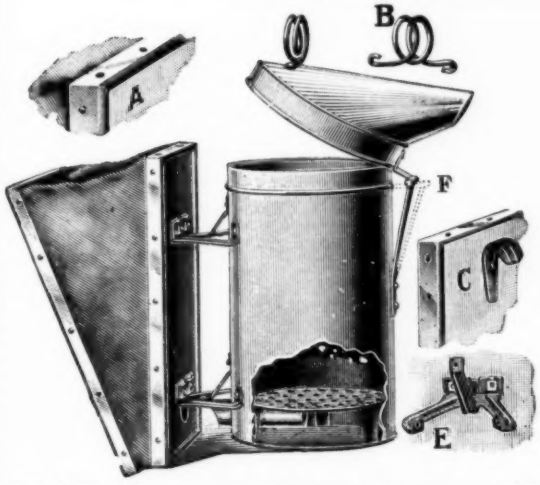
The Institute deserves the support of every honey producer in the United States. Here is my $1.00 per ton.

NAME .....

CITY ..... STATE .....

Smokers Designed by Roots

WITH 68 YEAR'S EXPERIENCE



• • •

The Snout is built to direct the smoke where you want it.

• • •

ANTI-SPARK DRAFT

• • •

IMPROVED BELLOW MATERIAL

• • •

THE A. I. ROOT CO., MEDINA, OHIO

MONEY-SAVING PRICES!

WHILE STOCK LASTS

24	No. 22652	Flat Metal Covers, each			$ .60
200	No. 2560	N Section Holders, per 100			4.00
3	No. 429	Resistance Coils, each			3.00
1		Robber Cloth			.60
1		Summer Girl Oil Stove			1.00
2		Root Section Presses, each			2.50
3	No. 21633	Excel. Covers, each	8-frame	5's	2.20
5	No. 21802	Hives,	"		10.50
4	No. 21202	" each	"		2.35
4	No. 21488	Mty. Hive Bodies, per pkg.	"	5's	2.80
1		Hive Stand	"		.50
7	No. 21522	Shallow Ext. Supers, each	"	1's	.70
5-1/5	No. 21528	Mty. Shal. Ext. Supers	"	5's	10.01
1 pkg.		Inner Cover	"	5's	1.12
4	No. 21713	Reversible Bot. Boards	"	5's	8.68
5-1/5	No. 21743	Hive Stands K. D.	"	5's	9.80
2		Bottom Boards, each	"		.50

A. W. Yates, Inc., 15 Chapman Street Hartford, Conn.

FLASH ANSWER YOUR CALL PAGE 312 PROGRESSIVE APIARIES

XUM

Screw-on Gate

Fill bottles, pails, from 5 gal. cans. Patented. Saves time and labor. No dripping or splashing. Well made, nickel-plated. Sizes 1¾" to 3"; measure across cap. Price $1.00 plus postage. Wt. 1 lb.

BEE HIVE PLIERS

Quickly and easily removes any frame desired. Scraper or pry on handle. Cadmium plated.

$1.00 postpaid. Order from

Ernest Fahlbeck, 406 S. Springfield Ave., Rockford, Ill. C. W. Aeppler, Oconomowoc, Wis. Walter T. Kelly Co., Paducah, Ky. August Lotz Co., Boyd, Wisc.

DIAMOND

HONEY FOR SALE

PACKED OR BULK

A CAN OR A CARLOAD

THE DIAMOND MATCH CO.

Chico, California

Here We Are Again!

STEVENSON'S GOLDEN ITALIAN BEES AND QUEENS.

The method of raising us plus the advantage of an early and continuous honey flow make us large, uniform, and very prolific. REAL QUEENS OF QUALITY.

Our bees are large, the best of honey producers, and so gentle that it is a real pleasure to handle them. Confidentially we are a worthwhile investment.

Write to

STEVENSON'S APIARIES,

Westwego, La.,

for descriptive circular. Quotations as per Marketing Agreement.

THE MIGRATORY STATE

(Continued from page 273)

essary that his old stock of drones be of good stock, in order that his new queens will mate with drones that will improve his stock rather than the reverse. In the more recent years it has become the custom of large producers to purchase their laying queens from some reliable breeder.

When all colonies have been requeened and have ample stores for winter, consisting not only of honey but a reserve of pollen, they should be placed on a location where they will be dormant or as nearly dormant as possible for the few months that follow. This last condition is very necessary, as it not only conserves stores, but gives the queen a rest. Colonies cared for in this manner will surely "snap out of it" when spring comes with a light flow and new pollen to give them the "fever." All that is necessary for a beekeeper to do with this kind of an apiary, is to be sure that they do not get short of honey at any time after they once start breeding. If this precaution is taken, he will have an apiary to be proud of when his first major flow comes.

(to be continued)

Hessmer Bee Farm

ITALIAN BEES AND QUEENS

Packages and Nuclei with Select Queens	
2-lb. packages, combless, each	$2.45
3-lb. packages, combless, each	3.15
1-frame nuclei, 2 lbs. bees, each	2.45
2-frame nuclei, 2 lbs. bees, each	2.85
Each additional pound bees	.70
Each additional comb of brood	.40

Dealer's discount, 15%

20% books order, balance 10 days before shipping date. Season starts April 1. Satisfaction, safe arrival guaranteed.

HESSMER BEE FARM

Willie Roy, Prop.

Hessmer, La.

BETTER-BRED QUEENS THREE-BANDED ITALIANS

We are prepared to handle your rush orders. Don't hesitate to send them to us. Raising queens and shipping packages is our only business. Not a side-line. We have left no stone unturned to give you the best queens obtainable and good honest, well prepared packages. Give us a trial and be among our many satisfied customers.

Price for untested select queens	$ .75
2-lb. packages with queen	2.45
3-lb. packages with queen	3.15
4-lb. packages with queen	3.85

Dealers wanted in all localities. Dealers' discount 15%

CALVERT APIARIES, CALVERT, ALABAMA

THE KEY TO YOUR SUCCESS

Williams' Package Bees and Queens

Our first thought for preparing package bees and queens for shipment is your Success, Honest Value, and the best possible Service.

Two-pound packages, with queen, $2.45 each; three-pound packages with queen, $3.15 each.

Select young queens, 75c each.

P. M. WILLIAMS, CASTLEBERRY, ALA.

High Quality Italian Queens and Package Bees

Young baby bees—No drones—Full-weight packages
Light shipping cages—Health certificate
Shipped on time—Direct express line North—Safe arrival and satisfaction guaranteed.

MARKET AGREEMENT PRICES

2-lb. package with select young laying queen	**$2.45**
**3-lb. " " " " " " **	**3.15**
Select young laying queen	**.75**
Packages without queen, deduct	**.70**
Additional bees per lb.	**.70**

15% Discount to Dealers

R. B. HERIER, VALDOSTA, GEORGIA

3-Banded Leather-Colored Italians!

Also Bright Italians — Package Bees and Queens

2-lb. pkg. bees with selected laying queen	$2.45
3-lb. pkg. bees with selected laying queen	3.15
Queens, each	.75
Prices from June First:	
2-lb. pkg. bees with selected laying queen	$1.95
3-lb. pkg. bees with selected laying queen	2.55
Queens, each	.50

15% Discount to Qualified Dealers

Garon Bee Company, Donaldsonville, La.

WHO WANTS THEM?

5000 packages of bees and 10,000 queens ready for May deliveries.

Merrill's Quality Bees and Queens

Have stood the test for 27 years. Try them, they will please you, too.

2-lb. package Italian Bees and Queen, each	$2.45
3-lb. " " " " " "	3.15
Untested Queens, any number, each	.75
Tested Queens, any number, each	1.50

Orders booked without deposit. 15 % discount to dealers.

MERRILL BEE COMPANY

BUCATUNNA, MISSISSIPPI

MISSISSIPPI'S OLDEST SHIPPERS

Package Bees and Queens

QUALITY BRED ITALIANS

Larger Supply~Bred for Business~None Better~Same Price

PRICES, ANY QUANTITY

Untested Queens, each	$ .75
Tested Queens, each	1.50
2-lb. pkg. bees with queen, each	2.45
3-lb. pkg. bees with queen, each	3.15
2-lb. pkg. bees without queen, each	1.70
3-lb. pkg. bees without queen, each	2.40
For each additional pound of bees add	.70

We are prepared to handle your orders for any quantity satisfactorily. Special care is given to the selection of breeding stock for improved quality. If honey is your object, give our bees a trial. Have no desire to sell close and will not book more than we can do. Full weights, freedom from disease, safe arrival and satisfaction guaranteed. Prospects indicate a heavy demand and orders should be booked now. Do not get left, order from this advertisement now and save time.

York Bee Co., Jesup, Georgia

(The Universal Apiaries)

DISEASE RESISTANCE IN HONEY-BEES

(Continued from page 300)

ing set-up within our Iowa organization is to be continued without change.

Summary and Conclusions

The major findings for the two seasons may be summed up as follows: (1) nearly half of the presumably resistant colonies tested have rid themselves of all symptoms of American foulbrood; (2) one-third of the second generation colonies tested have, likewise, eliminated all symptoms of this disease.

It is concluded, therefore, that resistance to American foulbrood does exist in honeybees, that it is inheritable, and that the eventual development of a strain of honeybees highly resistant to this disease appears to be well within the realm of possibility.

SPECIAL NOTICE

SEE

Holder Apiaries

LARGE AD

in this issue of Journal

STOP Reply Adv. Page 312 Progressive Apiaries

YOU WILL LIKE THE

FINE COMBS

your bees will build on

SCHMIDT'S QUALITY

Economy Foundation

Let us quote on your 1937 needs.

Oscar H. Schmidt, Rt. 4, Bay City, Mich.

Hilbert Method

Cut Comb Honey

write for our catalog which will include free full information on Cut Comb Honey Hunks and Chunks.

Jas. E. Hilbert, Traverse City, Michigan.

Italian Queens From Selected Stock

Twenty-three years' observations as Apiary Inspector convince me that good Italians will best serve the purpose of the average beekeeper.

For fifteen years the New Jersey Apicultural Experiment Station has been breeding, testing and selecting Italian bees for European foulbrood resistance and high honey yields.

Queens reared from this stock are offered for sale this season.

For more than twenty-five years Mr. Robert B. Spicer, Wharton, New Jersey, has been breeding and selecting Italian queens. He has discontinued commercial queen-rearing but has continued selecting. Choice breeders of this stock also will be used for queen rearing this season.

Prices:

Experiment Station stock, each....$ .75
Spicer stock, each..... 1.00

E. G. CARR, Pennington, N. J.

Caucasian Bees and Queens

For May and Later

Prices same as 1936, place your orders now and name shipping dates. More than a dozen years of selective breeding of mountain gray bees only, enables us to offer you good stock, bees and service guaranteed.

BOLLING BEE CO., Bolling, Ala.

Insure Your Crop

Why be disappointed?

Head Your Colonies With Nation's 3-banded Italian Queens

The Best Crop Insurance Known

Remember: "NATION'S QUEENS ARE SUPREME"

A. W. NATIONS, Donna, Texas

Breeder of SUPREME Italian Queens—They Rule

also packages and nuclei, standard prices.

Australian Beekeeping News
The Leading Bee Journal of the Southern Hemisphere is the
"Australasian Beekeeper"
Subscription 5 shillings per year. Start any time. Send International money order.
Write now to The Editor, P. O. Box 80, West Maitland, New South Wales, Australia.

XUM

Leather-Colored Italian

Bees and Queens

All queens mated from 3 Standard frame nuclei. All queens with our packages guaranteed reared as above.

2-lb. pkg. young queen	$2.45
3-lb. pkg. young queen	3.15
4-lb. pkg. young queen	3.85
5-lb. pkg. young queen	4.55
Young laying queens	.75

Shipped as promised in most modern cages; 20 years' experience.
Guaranteed to please.
15% Discount to Dealers.
Ship by fast express.

Order from this advertisement and save time. Young bees, full weight. Circular on request.

GOOCH APIARIES
Farmersville, Texas

EDWARDS METAL ROOFS

Look better, last longer, cost less. Protection from fire, lightning, wind and weather. Send roof measurements today for money-saving price, freight paid. **Ask for Catalog 88.**

THE EDWARDS MANUFACTURING CO.
533-583 BUTLER ST. CINCINNATI, OHIO

Roadside Stands!

HERE IS ANOTHER ROOT PRODUCT THAT YOU CAN HANDLE AT YOUR STAND

Root's Polishing Wax!

PACKED IN
1¼ lbs., 2½ lbs., and 5 lbs.
Write for Prices
and our Roadside Stand offer

The A. I. Root Co., Medina, O.

EDITORIALS

(Continued from page 293)

they will adopt the means recommended that will save the bees and at the same time kill the cotton-leaf worm before the cotton begins to yield honey. If, as H. B. Parks says, the pest can be destroyed before or after the bees visit the cotton, the problem will be solved.

If an intelligent use of the poison dust can protect the interests of both the cotton growers and the beekeepers then it will be time to ask for legislation that will compel the cotton growers to apply the poison when it will do no damage to the bees.

GOLD! GOLD!

You've struck it! Large gentle GOLDEN bees improved and bred UP from Italian stock. Marvel at the quiet power and long life of our personally reared young queens, the speed with which the package builds up and the way the honey pours in. Compare them with the best hive you have, regardless of breed or origin. At last your quest is ended!

Queens 75c each, postpaid; 2-lb. pkg. with queen, $2.45; 3-lb. pkg. with queen, $3.15.

SPOERRI APIARIES
ST. BERNARD, P. O., LOUISIANA

Package Bees and Queens

Order now for spring delivery, Prompt shipment, We have plenty of choice queens, Market Agreement Prices, 15% Discount to Dealers.

A. J. Hook & Co., Eutaw, Ala.

Fresh From Our Yards

Three-Banded Italian Queens and Package Bees
Marketing Agreement Prices

Citronelle Bee Co.
J. T. HAERTEL, Mgr.
Citronelle, Ala.

FLASH ANSWER YOUR CALL PAGE 312 PROGRESSIVE APIARIES

Quality QUEENS AND BEES

Select Queens Only

Young Vigorous Bees

Full-weight packages

Gentle productive breeding stock

Shipments on date specified

Light-weight, strong shipping cages

Agreement prices

2-lb. pkg. with queen, ea... $2.45
3-lb. " " " "... 3.15

Satisfaction guaranteed

Rossman & Long

MOULTRIE, GEORGIA

WHEN WRITING TO ADVERTISERS, MENTION GLEANINGS.

3-Band ITALIANS

Package Bees With Young Laying Queen

2-lb.	$2.45
3-lb.	3.15
Untested queens	.75
Select tested	1.50

Full Weight—Safe Arrival
Satisfaction Guaranteed

W. E. PLANT

Rt. 2, Hattiesburg, Miss.

SPECIAL NOTICE

SEE

Holder Apiaries LARGE AD

in this issue of Journal

STOP Reply Adv. Page 312 Progressive Apiaries

Bright ITALIAN QUEENS by Return Mail

Owing to our special breeding and selecting method we have a bright strain of Italian bees that swarm less, build up fast and are good honey-gatherers. If honey is your object, order NORMAN'S QUEENS. All queens are guaranteed to be pure mated and to give perfect satisfaction or your money back.

Young laying queens, each	$ .75
Tested queens, each	1.50
2-lb. pkg. with queen, each	2.45
3-lb. pkg. with queen, each	3.15

Queens by parcel post, postage paid. Packages by express, F. O. B. State inspection certificate. No stamps accepted.

NORMAN'S BEE COMPANY, LaPine, Ala.

PACKAGE BEES AND QUEENS

Your choice of queens.

Carniolan, Caucasian, Italian

Truck load orders should be placed early, as extra effort is required to have large number of queens ready strictly at time wanted. We take special pride in our ability to fill these large orders promptly. A quarter of a century of efficient service in the same locality is our record.

Marketing agreement prices, 15% discount to dealers.

H. E. GRAHAM, - - - - Cameron, Texas

XUM

"To Buyers of Package Bees and Queens"

❖ ❖ ❖

We are new to many of you. However, we have been in the bee shipping business for many years, shipping for dealers. We started our Apiaries with the intention of staying in the business of supplying beekeepers with the very best quality queens and package bees. "BECAUSE WE BELIEVE IN BEEKEEPERS AND BEEKEEPING". We have what we believe to be queens and packages as good as money can buy.

We give full weight. For each package we ship that is underweight, we will replace with another, free and prepaid.

We give you prompt shipments on all orders.

We quote Marketing Agreement Prices

Untested queens, each	$ .75
Two pounds bees and queen	2.45
Three pounds and queen	3.15

ALL DRONES SCREENED OUT. YOUNG BABY WORKER BEES.

For each additional pound bees add 70c. For queenless packages, deduct price of queen. 15% discount to dealers. We need more dealers in most states.

For those of you that wish to do so, we have made arrangement with the Jonesboro State Bank, Jonesboro, La., to accept and hold your orders until we ship your bees. Send us the order and send the money to our bank. We present our express receipt before we get our pay.

We can trade a limited number of packages for fancy table honey, and some light amber.

❖ ❖ ❖

Consider what this means to you and rush your order to

RAPIDES APIARIES

Winnfield, Louisiana

FOREHAND'S
THRIFTY BEES!

Are guaranteed to please.
Combless packages and queens.
Full-weight packages.
Light shipping crates.
Young, THRIFTY bees.
Forty-five years' experience.
Three-banded Italians.
Untested queens, each.....$ .75
2-lb. package, with queen..... 2.45
3-lb. " " " 3.15

15% discount to dealers.

W. J. FOREHAND & SONS
Fort Deposit, Ala.
Breeders since 1892

GASPARD'S

High quality Golden and Three-banded Italian Queens and package bees for Spring, 1937, delivery. Book your orders early and reserve shipping date.

(Comb Packages with queens)

2-lb. pkg. with queen with one frame of brood each.....$2.45
3-lb. pkg. with queen with one frame of brood each..... 3.15
4-lb. pkg. with queen with one frame of brood each..... 3.85
2-lb. pkg. with queen with two frames of brood each..... 3.15
3-lb. pkg. with queen with two frames of brood each..... 3.85
4-lb. pkg. with queen with two frames of brood each..... 4.55

(Combless Packages)

2-lb. pkg. with queen ea.....$2.45
3-lb. pkg. with queen ea..... 3.15
4-lb. pkg. with queen ea..... 3.85
Untested queens ea..... .75

Eighteen years' experience in the bee game, prompt and efficient service. Safe arrival and satisfaction guaranteed, and a health certificate with each shipment. Orders booked with 10% down balance at shipping time. 15 per cent discount to approved dealers.

J. L. GASPARD, Hessmer, La.

Mr. Beekeeper:

We are prepared to take care of those rush orders. How about boosting those weak colonies with one or two pounds of young bees? It may be the difference between success and failure.

Geo. A. Hummer & Son
Prairie Point, Miss.

XUM

Jensen's Apiaries

offer you

Superior "Magnolia State" strain Italians, with 20 years of breeding improvement behind it. Our reputation as queen-breeders has caused some unscrupulous to capitalize on our name to sell Package Bees. "Magnolia State" Queens procurable only of us, or our authorized agents. Our 1100 package colonies and over 2500 nuclei enable us to fill any reasonable size order on very short notice. "Right Now Service", full weight, prime young bees, queens that lay eggs amazingly rapid and compactly, and last but not least, "Low Express Charges". Join the host of Satisfied Customers, who have used Jensen's bees and queens consistently for years.

Prices:

2-pound packages with Select 1937 Queens, each	$2.45
3-pound packages with Select 1937 Queens, each	3.15
Booster packages, (queenless) deduct price of queen.	
4-pound orchard packages with 1937 Queens, each	4.00
5-pound Orchard packages with 1937 Queens, each	4.75
Nuclei:	
2 frames brood and honey, two pounds bees, and Queen introduced, each	4.15
3 frames brood and honey, three pounds bees, and Queen introduced, each	5.60

JENSEN'S APIARIES, Macon, Mississippi

Red River Valley Apiaries

Located in Northeast Texas

We offer service and quality in our three-banded Italian queens and package bees. We guarantee to send you queens that will not be superseded. Buy our bees and be sure of a bumper honey crop. We guarantee perfect satisfaction.

Full-weight 2 lb. pkg., with queen $2.45
Full-weight 3 lb. " " " 3.15
Untested queens ..... .75

Shipments sent promptly on date desired.

J. G. BRUNSON
CHICOTA TEXAS

PATENTS—Williamson & Walton
Attorney for The A. I. Root Co.
Munsey Bldg. Washington, D. C.

ORDER NOW

McVay's Bees and Queens

Satisfaction Guaranteed

2-lb. pkg. with queen....$2.45
3-lb. pkg. with queen.... 3.15
Laying Italian Queens.... .75

J. F. McVAY
Jackson, Alabama

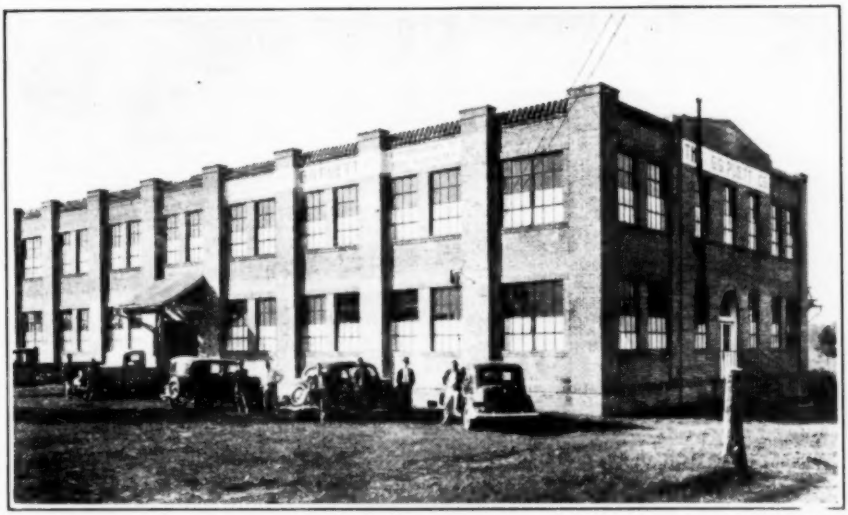
HIGH QUALITY PACKAGES AND QUEENS

My full weight packages will please you because the drones are excluded and the queens are carefully selected. Marketing agreement prices. I guarantee satisfaction or money refunded.

Still have open shipping dates after May 5th

STRACENER APIARIES **Prairieville, Louisiana**

Our New Headquarters



The above is a picture of our building which we own. We have 2,500 full colonies of bees to ship packages from. We have 3,400 queen-mating nuclei which will be in full operation prior to April 1. We have an additional number of colonies of bees to support our queen yards without interfering with our package shaking colonies.

We do not intend to beg you for your business but we would like for you to know that we have quality goods and can give you the best of service.

We can handle an extra 2000 packages and 500 standard nuclei for May delivery. Correspondence invited.

THE PUETT COMPANY

"Where Satisfaction Is a Certainty" HAHARI, GEORGIA

FLASH ANSWER YOUR CALL PAGE 312
PROGRESSIVE APIARIES

PURE Italian Queens and Package Bees!

Operating in new territory—New equipment—A large supply—honest weight—Prompt shipments—light cages—You must and will be pleased—

PRICES FOR GENUINE ITALIAN QUEENS—Postpaid to you

Shipment April 1 to June 1			Shipment June 1 to Oct. 1		
Untested	Each	$ .75	Untested	Each	$ .50
Tested	Each	1.50	Tested	Each	1.00

PACKAGE BEES—Express Charges Collect

2-lb. Package with Queen	Each	$2.45	Each	$1.95
3-lb. Package with Queen	Each	3.15	Each	2.55
2-lb. Package without Queen	Each	1.70	Each	1.45
3-lb. Package without Queen	Each	2.40	Each	2.05
For each additional pound of bees		.70		.60

For queenless pkg. deduct price queen—15% discount to dealers

Regularly inspected—No disease known here

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